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Agriculture is the nursing mother of the Arts.--XENOPHON.

Tillage and pasturage are the two breasts of the State.--SULLY.

63d Year.

Richmond, September, 1902.

1902

No. 9.

Farm Management.

WORK FOR THE MONTH.

Since the month of August came in up to this writing (21st August) nearly the whole of the Southern States have received good and much needed rains without being subjected to floods. The temperature has, however, been in most sections much below normal. In Middle Virginia, the second week in August was the coldest ever known at this season of the year. Notwithstanding this, crops have made good progress, the ground being warm when the rain fell on it, and thus in a condition to push on the growth when the needed moisture was supplied. The indications now are that we shall have an average crop of corn throughout the country grown on the largest acreage ever planted to that crop. In the Southern States, where about one-third of the total crop is grown, the yield will be shortened by the unfavorable weather we had at and just after planting time, but the acreage is larger than usual, and hence we shall have probably about the average supply. This shortening of the yield by a cold and backward spring emphasizes what we have so often said as to not being in too great a hurry to plant corn in cold wet land. Far better to give the land more cultivation and plant a little later when the soil is warmed, and when the growth can be continuous from planting to maturity. Corn once set back, especially when this set-back occurs soon after planting, rarely makes a good crop, however propitious the season may be. Cotton and tobacco, whilst promising to be average crops on the

whole, are yet very varied in different sections even of the same county. Sweet potatoes promise an excellent crop in Tidewater and on the Eastern Shore. Peanuts have improved considerably since the rains. Abundant crops of forage plants are being harvested—peas, Soy beans and sorghum having made a great growth since the rains. Corn for the silo is making a fine crop. The fruit crop, with the exception of pears and grapes, is comparatively a failure in this State and North Carolina. Water-melons and canteloupes have been and still are very plentiful. The melon crop in Tidewater Virginia has now become quite an important factor in the agricultural economy of that section, several hundred thousand melons having this year been shipped from thence to New York and other Northern markets.

The work of preparing the land for the seeding of the wheat crop should have attention. In this issue will be found an article dealing fully with this subject, to which we refer our readers.

The land for the winter oat crop should be got ready and the crop be sown in this and the following month. As a rule, the seeding of winter oats is delayed much too long, and as a consequence, much of it is killed out during the winter. One of the best farmers in the middle section of Virginia, who always made a great crop of winter oats, told us some years ago that after thirty years' experience in growing it he always

found that he made the best crop when sown in September. We have known him to make seventy five bushels to the acre year after year. He plowed deeply, prepared a fine seed bed, and covered the oats deep. In the winter he usually top dressed the crop with farm-yard manure, and rarely suffered from winter killing. There is no reason whatever (except the carelessness of farmers in seeding the crop late and putting it on the poorest land on the farm) why such poor yields of this crop should be made as are common in the South. If it is worth growing at all, and it certainly is, as both the grain and the straw are valuable as feed, it is worth while to give it an opportunity to do its best. If the land is poor, give it a dressing of acid phosphate, say, 300 or 400 lbs. to the acre. Do not sow poor, light seed. There are several new varieties now being offered which promise to be valuable. In Tennessee, the Culberson oat made seventy-three bushels to the acre, seeded October 3d. It matured earlier by fully two weeks than any other variety.

In some sections of this State winter barley is now being grown, and promises to become a popular crop. It makes good winter and spring grazing. It should be sown during September or early in October. At the Tennessee Station, seeded on September 17th, it made a yield of thirty bushels to the acre, and it has made on good land in that State seventy one bushels to the acre.

The work of seeding grass should be pushed on as fast as possible. In our August issue we wrote very fully on this subject, and to that issue we refer our readers. In connection with this subject of hay-growing in the South we note from the latest returns of the Department of Agriculture that the Southern States make an average yield of hay greater than many of the Northern and Western States, and that, on land not selling for one half the average price of the land in those States, thus effectually disposing of the objection that we cannot grow hay in the South.

Continue the work of seeding Crimson clover and Sand vetch, as advised in our August issue. Seed with a mixture of wheat or oats, or both. This will give winter and spring grazing an early forage crop for feeding green, or good hay, and if not wanted for any of these purposes will be worth all it costs to produce, to turn down to supply humus and plant-food for the corn crop next year. In this issue will be found an article dealing with the subject of humus and its importance in improving the lands of the South.

Give attention to the harvesting of the forage crops

as they mature. Do not allow the cow-peas to stand until all the leaves and most of the peas are on the ground. Cut when the first pods are turning yellow and cure, as advised in our last issue, or try the method advised in this issue by Mr. Blacknall. Sorghum makes the nicest feed when cut when the seed is just forming or a little before this time. If allowed to mature the seed much of the nutriment is removed from the stalk and leaves and stored in the seed. Millet should be cut when in bloom and before seed forms. The seed is injurious to most horses and to many cattle. If Kaffir corn or sorghum is allowed to stand until the seed matures it should be threshed out before the fodder is fed to stock and be ground into meal for feed. If fed on the stalk very much of it will be wasted by passing through the animals undigested.

Rape and turnips may still be sown for pasturage, though it is getting late for them to make much growth unless the fall is a fine one. If the winter is not a severe one rape will stand through it and make good pasturage again in the spring.

When filling the silo do not hurry the work. Cut half a day and fill half a day. In this way the silo will hold much more, and better, sweeter silage will be made. Cover the silage with coarse marsh grass or with cut straw and chaff to the depth of a foot or eighteen inches. Water this well and pack solid and it will soon mat together with mold and form a perfect cover for preserving the silage.

Do not waste time pulling fodder. Cut the corn down at the root as soon as the grain is glazed and dented and set up in shocks. In this way both fodder and grain will be saved and both make good feed. No farmer can afford to waste corn stalks. Properly used and saved they contain a very large proportion of the feeding value of the crops.

Weeds will grow apace on the stubble fields now that there is so much moisture in the ground. Have them cut down with the mower before they seed and either leave as a mulch or dry and cure for feed. There is very considerable nutriment in many weeds, and they make, when nicely cured, a great help in providing quantity if not quality of feed for young stock in winter. Especially are they relished by sheep in the winter, and they do them good.

As opportunity offers, set the plows to work breaking land intended to be cropped next year. There is no fear of plowing too deep at this time of the year. Turn up some of the subsoil on to the top and let it be weathered; it will by next spring be ready to give

up some of its unexhausted plant-food for the benefit of the crops. When the subsoil is a good one or a hard pan, break it with a subsoil plow, and thus add to the available feeding ground of the crops, and form a reservoir for the storage of water, and thus prevent washing and gulying of the land. When too late to sow Crimson clover, vetches or wheat or oats on these plowed lands sow rye at the rate of a bushel to the acre. This will serve as a crop to conserve fertility and prevent the leaching of plant-food from the soil. It will also add humus to the land when turned under in the spring.

Have all barns, stables, sheds and houses thoroughly overhauled and put into a good state of repair before the cold nights come on. It is very little good taking up cattle out of pastures and housing them in leaking, drafty buildings. They are better out of doors than in such places. A few hours spent with some lumber and nails would make many a building comfortable which now is almost worse than useless.

Have all manure cleaned out of the stables, pens and yards, and put upon the poor places in the fields. Then use the lime-wash bucket and brush freely inside and outside the buildings (unless the outside be painted). Lime is a great destroyer of germs of disease and sweetener of the atmosphere. A coat of paint applied to the outside of the house and barn would add much to its appearance and preserve the lumber. A few hundred dollars spent in paint to be applied to the farm houses and buildings in the South would add hundreds of thousands of dollars to the selling value of Southern farms.

WHEAT SEEDING.

In our last issue we remarked that whilst it was too early to begin sowing wheat or winter oats in August it was none too early to begin the work of preparing the land for these crops. This work of preparation we hope has been in progress on many farms during August. The land where not too wet has been in fine condition for plowing—the showery weather we had having softened the surface whilst the abnormal coolness of the air has made work pleasant and comparatively easy for the teams. The importance of well fitting the land for seeding wheat is not half appreciated as it ought to be. Exhaustive experiments conducted both in this country and in England have conclusively shown that perfect preparation of the land before seeding is of much greater influence on the yield than the quantity of fertilizer applied. When once the seed is sown in the case of wheat and oats the work of cultivation practically is at an end. In

the production of corn, cotton or tobacco, and of potatoes and other hoed crops the work of cultivation is carried on simultaneously with the growth of the crop, and often continues until the crop is almost grown. If this be necessary to secure a good yield in the case of these crops seeded in April and May, and we know it to be so, then how important is it that in the case of wheat and oats seeded in September, October and November, and so seeded as that after cultivation is practically impossible except to the extent of harrowing the field over once in spring, and even this is often neglected, that the land should be so prepared before seeding as that the crop may be able to secure the necessary food for its perfection. This it cannot possibly do unless the land be deeply broken and the surface soil to the depth of four or five inches be so fined as to permit of the rootlets of the plant penetrating it easily, and the action of the air and the moisture of the atmosphere being admitted to render soluble the plant food contained in each grain of soil. Professor Hunnicutt, in discussing this question of preparation, says: "We once selected one acre in a twenty-acre field, an average spot, and plowed and harrowed this acre fourteen times right along before we quit. We then planted and cultivated this acre just as we did the rest of the field, running the rows right along through it. The yield was much more than double any other acre. This has continued to be true for five years in all kinds of crops. All through the growing season this acre can be distinguished as far as you can see the field. All crops grow off quicker and yield heavier. 'Culture is manure' is true." In an experiment made in South Dakota three plats on which wheat had been grown continuously for five years received different cultural treatment. The first was plowed three to four inches deep and given ordinary cultivation; the second was plowed six to seven inches deep, but otherwise treated as the first; the third was given better cultivation, and was spring plowed 6 to 7 inches deep. The yields for the three plats were 4 bushels, 7 bushels, and 13 bushels per acre respectively. In previous experiments harrowing after fall plowing, rolling, and harrowing after spring plowing, and harrowing again when the wheat was six inches high increased the yield $4\frac{1}{2}$ bushels per acre as compared with only such cultivation as was necessary to put in the crop. The result of these and other similar experiments go to show that the question with the farmer ought not to be is this land fit to be seeded, but rather can I not make it much fitter by giving one or two extra rollings and harrowings. Whilst this costs something in labor, labor even at present prices is usually cheaper than fertilizer and much more certain in its results. That it is important to avail ourselves of everything that can increase the yield of

wheat in the Southern States if the crop is to be produced profitably is evidenced by the average yields quoted in our last issue, viz. : Virginia, 11 bushels to the acre ; North Carolina, 8 bushels to the acre, and for South Carolina 8 bushels to the acre. For this year the estimates just published give for Virginia, North and South Carolina slightly over five bushels to the acre, for Georgia and Tennessee slightly over six bushels to the acre, for West Virginia seven bushels to the acre, and for Kentucky nine bushels to the acre. Maryland is estimated at fourteen bushels to the acre. Yields such as these cannot be profitable. That they can be easily improved upon is conclusively shown by the report on the crop of this year of Mr. Bellwood, grown in Virginia, published in this issue, where seventy-five acres of land made an average of twenty-nine bushels to the acre, and some part of the area made over forty bushels. This crop was made without the use of any fertilizer, and on land that only a few years ago was regarded as poor and worn out, and which has been brought up to its present state of fertility solely by the use of leguminous crops, deep and perfect cultivation, and a sound system of rotation of crops. Having said this much in enforcement of the importance of good and early preparation of the land, it may be well for us now to point out what are the essentials for securing a profitable crop of wheat. This we would state in this order : 1st, land of good fertility ; 2d, land broken deeply and early enough to allow it to become well consolidated before being seeded ; 3d, land with the surface soil to the depth of three or four inches as finely broken as can be done ; 4th, land seeded as early as can safely be done to avoid injury from the fly ; 5th, the seed sown to be of a variety suited to the climatic conditions of the section and well cleaned and freed from small and light grains. That land of good fertility is needed is evidenced by the fact that a crop of thirty bushels of wheat to the acre with an average production of straw takes from the soil 45 pounds of nitrogen, 22½ pounds of phosphoric acid, 28 pounds of potash, and 10½ pounds of lime. This amount of plant food must be in an available condition, and to secure this it is necessary that either the soil must naturally be fertile or it must have these constituents added in due proportion. The availability of the plant food is largely determined by the fineness of the preparation of the seed-bed. Whilst nitrogen is the element called for in largest proportion, yet numerous experiments have gone to prove that phosphoric acid is the constituent most largely controlling the yield of wheat. At the Virginia Experiment Station, as the result of a series of tests, Professor Nourse reports "that the greatest yields of both grain and straw have been produced on plots fertilized with all three elements—

nitrogen, phosphoric acid and potash—but that the most effective of these has been phosphoric acid. From a financial standpoint, the results obtained show that nitrogen and potash, used alone or combined, have on the Station soils resulted in loss. Phosphoric acid alone has proven more profitable than applications of potash, phosphoric acid and nitrogen combined, though the yield per acre has been less. The greatest profit resulted from the combined use of phosphoric acid and potash. In experiments conducted at the Tennessee Experiment Station with winter wheat after bare fallow it was shown that the cost of the increase per bushel was 19 cents with 250 pounds of acid phosphate per acre in two applications, 26 cents with 10 tons of barnyard manure applied in 1900 and 5 tons in 1901, and 32 cents with an application of 50 bushels of lime in 1900, while accompanied by a crop of cow-peas plowed under 50 bushels of lime applied in 1900 reduced the cost of increased yield per bushel to 16 cents, 250 pounds of basic slag to 17 cents, and the same amount of Tennessee and South Carolina acid phosphates to 16 and 20 cents. The phosphates gave good results in all cases. To supply the quantity of plant food needed by a 30 bushel crop of wheat would call for the application of 300 pounds of nitrate of soda or 600 pounds of cotton-seed meal, 200 pounds of 12 per cent. acid phosphate, and 50 pounds of muriate of potash to the acre. As crops are seldom capable of utilizing more than 50 to 75 per cent. of the plant food supplied by a fertilizer to secure the amount of food which the crop calls for, either much more than these quantities must be applied or there must be a reserve of food in the soil which good cultivation must render available. The nitrogen called for can be well supplied by a crop of clover or cow-peas plowed down, but to be effective this should be done at least six weeks or two months before the land is seeded, or otherwise a sufficiently consolidated seed-bed cannot be obtained and the value of the clover or cow-peas is largely neutralized by the spongy seed-bed. If this cannot be done then the crop of clover or cow-peas should be made into hay and the stubble only be turned down. This stubble and the roots of the plants will largely supply the nitrogen called for. As showing the value of cow-peas as a preparation for wheat where wheat was grown continuously on the same ground for three years, each crop preceded by a crop of cow-peas, the crop gave an increased yield of 46 per cent. as compared with breaking the stubble and not sowing peas. The phosphoric acid required can be supplied either by acid phosphate or bone meal, or by a combination of the two. Wherever the supply of nitrogen is deficient bone meal should be used, as it provides some 4 or 5 per cent. of nitrogen in addition to the phosphoric acid. Whilst potash is shown to be quite

largely called for, yet from the fact that the best wheat lands usually contain a large proportion of clay which is naturally rich in potash, though often in an unavailable form, this element can usually be secured by a dressing of lime, say of 50 bushels to the acre, and this has the additional advantage of almost invariably securing a good stand of clover in the wheat. When applying lime and phosphate to the land previous to seeding a crop the lime should be applied as soon as the land is plowed and be harrowed in and become mixed with the soil for a week or two before the phosphate is applied, as it has a tendency, if brought into immediate contact with the phosphate, to revert it and thus render it less available. Where land is very deficient in nitrogen, as in land lacking in humus or upon which neither cow-peas nor clover have been grown, it is better only to supply sufficient in the fertilizer applied at seeding time to give the wheat a start and then to give a top dressing of nitrate of soda in the spring, say 100 pounds to the acre, when the plant has started growth.

As to the time of seeding. We would urge earlier seeding than is often practiced, yet at the same time caution in not seeding so early as to incur the risk of fly in the crop. Usually this may be secured by seeding after the first frost. It is of importance to secure a good growth of the plant before the hard frosts set in, as this largely prevents heaving of the crop and winter killing. Wherever the fly has been prevalent a catch crop of wheat, say a strip across the field, should be sown in September. The flies will attack this and can then be plowed down and destroyed. As to the variety to be sown, experiments have clearly demonstrated that there is practically no difference in yield between the bearded and smooth varieties. Amongst the best yielding varieties in recent experiments in the South are Fulcaster, Poole, Mediterranean, Currell's Prolific and Harvest King. These have all given yields of from 30 to 37 bushels to the acre.

HUMUS THE GREAT RENOVATOR OF THE SOIL.

The greatest need of all the land of the South is humus. Humus is decayed vegetable matter, and is the prime agent in promoting fertility in the soil. In its absence lands rich in all the elements of plant food fail to produce good crops. Analysis may show the soil to have more phosphoric acid and potash in it than could be exhausted from it by a long series of crops, and yet it will fail to produce, nor can it be induced to do so by the application of fertilizers of any kind unless and until filled with humus. The soil without humus is practically a dead soil, and a dead soil is an unproductive one. Leave a piece of

land which has been rendered unproductive by constant cropping without the return of any plant food uncared for and unworked, and nature will set about its renovation by the restoration of humus. Weeds and the lowest forms of plant life will commence to grow, young forest trees will get a start, and the dead leaves and vegetable matter will each year be added to the soil. These, in process of time, will restore the fertility of the land, but the process is a slow one. But it must be imitated by man if the soil is ever again to become a profitable one. The humus in all our Southern lands has been exhausted mainly by constant cropping in clean-hoed crops and by the continuous growing of one or two crops.

In experiments conducted in Minnesota, it was found that continuous wheat growing for eight years caused an annual loss of over 2,000 lbs. per acre of humus due to the fermentation and decomposition of organic matter in the soil. This loss of humus changed the physical properties of the soil, causing it to be less retentive of moisture, lighter in color, and heavier in weight per cubic foot. During times of drought, the soil from the continuous wheat plot contained less water than the soil from the plot which produced wheat in rotation with clover. Humus conserves the moisture of the soil, while the rotation of the crops, the use of farm manures and the growing of clover and other leguminous crops conserves the humus of the soil. One of the great objects served by humus is that of forming a home for the millions of microbic forms of life upon which it is now known depends largely the conversion of the soil elements into available plant food. In the absence of humus these forms cannot exist and multiply, and without them plants cannot get their food. Another object served is the formation of humic acid, which is a powerful solvent of the mineral plant food, either naturally existing in the soil or applied to it in the form of fertilizer. A third object is the keeping open of the soil so that the oxygen of the air can penetrate it and carry its life-giving properties to the plant roots. This humus being, then, of such importance in restoring and maintaining the fertility of land, it is of the highest moment to the farmer that he shall know how to secure it. It may be done in several ways. If his land is near a city, he may buy manure from the city stables. This is the course largely adopted by truckers who need very large supplies of humus in their soils to enable them to produce quickly the vegetable crops which they supply to the cities. This method of supplying humus-making matter to the soil is too costly and incapable of adoption by the general farmer. Where a large head of live stock is kept on the farm, and all the manure is carefully saved, large supplies of humus-making matter may be added to the land

each year; and this is one of the great advantages secured in keeping a large head of live stock even when the price of beef and mutton is low in the markets. There are thousands of farmers in England and Scotland who, in years of even average prices for meat, make but little profit on their live stock beyond that secured in the manure made by the stock. But this manure keeps their lands rich and enables them to make heavy crops of wheat, barley and oats without any purchased fertilizer, and therein is profit. The average yield of wheat in England is over thirty bushels to the acre, as against about fourteen in this country. Such a yield would not be possible unless the land was filled with humus. The South needs much to follow in this line, for now, and we believe for several years to come, there is not only profit to be had in the manure made, but in the meat produced. A third method of adding humus to the soil is by the growth of leguminous and forage crops. This method can and should be adopted by every farmer. It is the quickest way in which the work can be done, as here we can grow two, at least, of these crops in every year. By keeping the land covered with these crops, both in winter and summer, we promote the nitrification of the soil, prevent leaching of available plant food, and at the same time, when the crop or stubble is plowed down, add rapidly to the humus content of the soil. During the spring and summer months, we have been urging the growth of these leguminous and forage crops as food for stock. We now urge the growth of Crimson clover, Sand vetch, Winter vetch, and mixed with these or separately, wheat, oats and rye as food for the soil and as savers of the fertility in the soil which will otherwise be leached away by the winter and spring rains. At the cost of about a dollar, as much Crimson clover, vetch, and wheat, oat or rye seed can be had as will seed an acre, and the labor cost need not amount to as much more. For this two dollars humus making matter can be had worth to the permanent fertility of the land many times the cost. Let this work be attended to during this and the two following months. It will be time and money well spent.

WHEAT CROP AT DREWRY'S BLUFF, VA.

In our July issue we published an article on the value of leguminous crops, good preparation, and a sound system of rotation as factors in the successful production of wheat. The crop of wheat which led to the writing of that article was one of 75 acres grown by Mr. Bellwood on his farm at Drewry's Bluff, Va. We then estimated the crop at an average of 25 bushels to the acre. Some part of it we thought would go much beyond that yield and a small part less. Re-

cently the crop has been threshed out and has given an average yield of a little over 29 bushels to the acre. One part of the crop yielded 40 bushels to the acre, and a small part only 24 bushels. The point about this crop of most interest is that on no part of the land has any fertilizer been applied for many years—in fact, never since Mr. Bellwood owned the place. The land has been brought up to its present state of fertility by the adoption of a system of rotation under which at least one and often two leguminous crops have been produced between each grain crop. This, with deep plowing, fine preparation of the land, and early seeding of the crop has brought about the result stated.

CURING PEA-VINE HAY.

Editor Southern Planter:

The cow-pea is worth as much as the cotton plant to the country, perhaps more, for it thrives much farther north and thrives in vast regions in which cotton will not grow at all. The cow-pea has a three-fold value. Greatest of all is that it increases the fertility of every acre on which it is grown and increases it faster and more economically than any other crop as easily, surely and widely grown. Then the pea itself is of a high value as stock food, nor do men with sound appetites despise it. Third, as a forage the pea vine hay is beyond comparison the best food that we have ever used. Shredded as we shred it its actual value to us is fully twice that of average timothy hay. Of course a chemical analysis does not show that difference, though I believe it shows a considerable difference, in favor of pea vine hay. In estimating its value I consider the great relish of all the animals for it, their superior condition and working capacity, and the lessened ration of grain that will keep them up while fed on it.

The value of pea-vine hay as a forage depends very largely upon its proper curing; probably more so than any other forage whatever. The curing of it is the simplest, easiest thing in the world. I don't know how I came to adopt it, unless it was owing to my belief that the best things are the simplest things, the best ways the simplest ways. Nevertheless, this mode of curing is of incalculable value to us. For it not only cures the hay perfectly, but there is no worry, no element of uncertainty as in all other modes.

We cut the pea vines with a mower drawn by two horses. One machine well handled will cut nearly ten acres a day. A cutting blade could, of course, be used for a small acreage. Right behind our mower follows a force putting up stack poles. Any ten foot pole will answer as it has to stand only a short while. The pole set we nail a strip of wood—readily riven from

pine or any wood that splits easily—about four feet long, placing it about one foot above the ground, and immediately above another similar strip nailed cross wise the first. These strips serve to keep the bottom of the stack of vines from resting on the ground and rotting in wet seasons. Brush will answer as well or even better though it is not practicable where a great many stack poles are to be protected. We put up about 2000 stacks every fall. We have cured vines without any rotting at all when no protection at all was used at the bottom of the stack.

Well, the stack poles planted, we follow right behind the mower and make stacks of the vines as high as the poles and about four feet in diameter, sloping and smoothing the stacks at the top so as to shed water.

No more attention or thought need be given the stacks until the vines are sufficiently cured to be threshed and shredded. And a beautiful and most excellent lot of forage you will have, too. All cured green and sweet. It tastes sweet—almost like sugar cane. The shredding should be done as soon after the vines are cured as practicable, as the longer the stacks stand the deeper the weather affects the vines. Besides, bad weather is apt to come later in the fall and hinder the shredding.

We have found the mode to work perfectly even in seasons like 1901—the wettest ever known here. My neighbors, who let their vines lay to cure or even to wilt, had them badly damaged. We went right ahead reaping and stacking every hour that the standing vines were not actually wet with rain and lost not an armful of forage.

Having thus to our complete satisfaction settled the vexatious matter of curing the hay, we plant one hundred acres of peas annually. The result is that we have an abundance of excellent forage to use and much to sell. Our work animals are the wonder and admiration of the neighborhood, though their work is the heaviest in the country, our two hundred acres of strawberries requiring at least eight plowings from May to September to keep them perfectly clean. I have calculated that one horse in giving these eight plowings would have to travel nearly 5,000 miles.

The stubble fields from which the vines are cut are plowed under as soon as practicable and in October or November plowed again and prepared for strawberries. When the strawberries come off the field is again drilled to peas. By this rotation our land, the poorest in the country, it was said when we started, has become about the best. The peas fit the soil for any crop, but they seem just the thing to put it in perfect tilth for strawberries which revel and flourish like the green bay tree. And thus the pea has become the salvation of our land and of ourselves.

O. W. BLACKNALL.

Kittrell, N. C.

ARE OUR FARMS BECOMING IMPOVERISHED?

Editor Southern Planter :

The idea is prevalent with many persons, and especially with those who write for the agricultural press, that the ground is becoming impoverished, the soil getting less fertile, and the farms producing less and less. We know that some of the fertility at the surface is being carried off in farm crops, and that some of the manure spread on the fields is carried down with the rain water below the reach of the deepest rooted plants, or the best turning plow. We behold the creeks and rivers at flood time loaded with rich sediment swept from the hillsides and surface of the cultivated fields, and bearing it down to the ocean, where it is destined to remain until in some future age of the world it is elevated by subterranean heat from beneath the waves, to become the prairies of a new continent.

Of the immense amount of fertility carried down by the rivers forming vast deltas at their mouths, and the never ceasing flow of sewage from the great cities, only a small proportion is ever returned to the farms in the shape of fish, oysters, clams, and sea-weeds.

Of the vast quantity of food for man and beast shipped from the farms to the cities, only a fraction is ever returned to restore the fertility it removed, and this fraction seldom reaches the farms from which the food came.

From this point of view, the whole tillable earth, sooner or later, is sure to become a barren, and the period of universal starvation for man and beast will not fail to arrive.

Professor Julius Hensel, of Germany, says: "The yield of the ground is steadily decreasing." Dr. Galen Wilson says: "The farms in New York, and probably those in most of the old settled States, are depreciating in available fertility." They cite us to the abandoned farms in New England, and the impoverished fields of the South, as the omen of the approaching day of wrath, the beginning of the end.

These people seem to forget, or do not properly consider, that the creative agencies which first formed the soils are still as active as ever; that the work of soil refinement is still going on as vigorously as at the beginning; that the rocks are crumbling to atoms, and the atoms rotting down to fine, soluble, fertile earths. The Report of the Commissioner of Patents for 1861 says: "The constant penetration of minerals and rocks by water, with alternate freezing and thawing, breaks up and disintegrates them, setting free their potash, lime, phosphoric and silicic acids, &c., for plants. Chemical analysis informs us that the soil contains immense quantities of nitrogenous organic matter, in which the nitrogen is not in a state assim-

lable by plants. The constant variations of moisture to which this is subjected under the varying influences of temperature serve to break up these organic compounds, to set free carbonic acid and ammonia and nitric acid from them for the roots of the growing plants."

It was the assistance of superior tillage which Jethro Tull and the Rev. Mr. Smith, of England, gave to these natural agencies to dissolve the organic compounds, that enabled them to farm so many years without the use of fertilizers of any kind, and thereby claim that tillage is manure.

The earth receives back and absorbs the fertilizing gases which escape in the process of fermentation and decay. The nitrogen which ascends from the steaming dunghill is not lost from the world, although it may be lost from that particular farm. It descends again with the rain and snow, and no doubt is sometimes absorbed by the earth when carried over the fields by the wind.

Dry earth renders inodorous the stench from the privy vault, and in the economy of nature the earth purifies the air, and in purifying it obtains some of the materials wanted for the formation of plants. Clover and other leguminous plants obtain nitrogen from the atmosphere in unlimited quantities, and nitrogen is one of the most important and indispensable ingredients of a fertile soil.

It is frequently asserted that the yield of all crops is far below the average of years ago. "This is not true in regard to the farm on which I live, which has been cultivated a hundred years, and I think produces as good crops as ever it did. The farms on the opposite side of the river from mine have been cultivated still longer, and so far as I can see produce as abundant crops as ever when the cultivation is good.

The yield of farm crops varies, as everybody knows, in different years according to the favorableness or unfavorableness of the seasons. The average yields of wheat per acre in the United States in the year 1866, according to the Report of the Commissioner of Agriculture, was 9.9 bushels, and for the year 1898 15.3 bushels.

According to the census of 1880, the average yield of wheat per acre in the United States was 13 bushels, and by the census of 1890, 14 bushels.

The Secretary of Agriculture, in his Report for 1892, says: "The yield on *old* land is increasing, and on new land decreasing. New England in the few fields cultivated obtains more per acre than the richest soils of the West." He explains the falling off in the yield of western lands thus: "The yield declines in the newest and richest soils, not because of soil exhaustion, but because of its fatness in stimulating weeds."

If the soil was wearing out, and the land becoming impoverished, as Dr. Hensel alleges, then the impoverishment would be most apparent in Europe, which has been under cultivation for two thousand years. The average yield of wheat per acre for the last five years preceding 1900 was in Hungary 17.4 bushels; France, 19.5 bushels; Germany, 26.1 bushels, and in Great Britain 32.2 bushels.

Fertility will continue to escape into the sea, as it has done ever since the rivers began to run, and cities were built on their banks. Fertility will continue to sink into the earth below the reach of the roots of plants, but with good farming the natural recuperation will go on, good crops will continue to be raised, and the fields grow richer instead of poorer.

J. W. INGHAM.

COMPLETE AND INCOMPLETE FERTILIZERS.

Editor Southern Planter:

A complete fertilizer is one which contains the three essential plant food ingredients—nitrogen, phosphoric acid and potash. Correspondingly, every fertilizer which is lacking in any one of these ingredients, is of necessity an incomplete fertilizer. A complete fertilizer is made by mixing together certain raw materials which contain phosphoric acid, nitrogen and potash. The most common of the raw materials used as sources of plant food are nitrate of soda, sulphate of ammonia, tankage, fish scrap, dried blood and cottonseed meal as sources of nitrogen. The phosphoric acid is obtained mostly from acid phosphate, dissolved bone or bone meal. For potash we have to look to Germany, from which country are exported great quantities of potash salts, these salts most commonly appearing on the market in the form of muriate of potash, sulphate of potash, sulphate of potash-magnesia, and kainit.

Some farmers buy their fertilizers already compounded, while others purchase the materials separately and mix them at home. In either case it is equally essential that the fertilizer applied should be properly balanced; most of the bad results obtained are due either to an inequality in the composition of the fertilizers, or else to an injudicious application of the manure. No farmer can tell exactly what fertilizer will give the best results upon his particular soil unless he has made some experiments and observations on his own account. It is true that experimenting requires care and attention, but nevertheless, after the farmer has once ascertained what proportion of plant food ingredients will produce the most profitable returns, the increased yields will more than compensate him for the time and trouble involved.

No special rules can be laid down for applying the

fertilizers, though it is a generally recognized fact that manures for fruits and vegetables should contain a liberal percentage of potash. Potash exercises a marked influence on both the quantity and quality of the produce; this ingredient, however, should be well backed up with phosphoric acid in order to produce the best results. As for the nitrogen, much study should be given to the amount of this ingredient to be used, for if an excess is applied it is liable to produce a rank growth of foliage at the expense of the fruit or grain, whichever the case may be.

It often happens that the physical condition of the soil is such that the fertilizers will not produce paying results, and in some cases an application of lime at the rate of 2,000 pounds per acre will prove quite beneficial.

It will pay the farmer to keep his soil well supplied with organic matter through the cultivation of one or the other of the leguminous crops, clover or peas, for every well informed farmer now-a days knows that as these crops possess the property of absorbing nitrogen from the air, the soil on which they are grown needs only to be fertilized with potash and phosphate, thus saving the expense of applying nitrogen, the most costly ingredient of all.

GEO. K. WILSON.

[It will not pay any farmer to use commercial fertilizers unless his soil is well supplied with humus from decayed vegetable matter. This and not fertilizers is what nearly all the land of the South most needs. The leguminous crops most quickly supply this need, but vegetable matter of any kind can be utilized for the purpose. No straw, grass or weeds should be burnt, but be all turned under.—ED.]

THE COST OF WHEAT PRODUCTION IN THE SOUTH.

Editor Southern Planter:

For some time I have been a subscriber to your valuable journal. I have watched and read all articles written on "Preparing the Seed-Bed for Wheat," "Harvesting the Wheat," &c., but have never seen anything in regard to the cost of producing the same, except in your July issue, "Cost of Growing Wheat in Kansas." That is too far from home for us to feel that it is the cost of our grain.

For several years I have kept an account with my wheat crop, charging up each night the actual amount of labor for the day, with twenty-five cents added for board, and each horse twenty cents a day for feed.

The following statement is for the year 1899-1900, when corn was worth \$1.50 per barrel; hay, \$10 per ton; bran, \$20 per ton; labor, \$10 and \$12 per month, or 50c. per day, both with board. These figures are not intended for the farmer who owns his farm and operates it himself, but for the man who rents and gives as rent one-half of the crop, the landlord furnishing one-half seed wheat and one-half fertilizer. I will not go into full details, but simply give the totals. I take the liberty of sending this with the

hope that it will interest some one enough to make a reply, and thereby help me and some other young farmers.

I would ask each farmer, Do you know what it costs you to raise a bushel of wheat on your farm? If you do not, just begin this year, and see for your own satisfaction.

Cost of Production, 1899-1900—126 acres.

Stubble fallow.....	33 acres
Corn ground.....	47 "
Wire grass pasture.....	46 "
	126 "

Plowing, dragging, raking and carting off wire grass, scooping water leads and drilling wheat	\$ 91 75
Feed for stock	53 20
Fertilizer and freight (one-half).....	142 00
Seed wheat (one-half).....	91 50
Freight and drayage, seed wheat, (one-half)	4 25
	\$382 70

Harvesting:

Extra labor, at \$1.00.....	14 00
Regular labor.....	7 00
Feed for stock.....	5 60
Twine	22 00
	\$48 60

Threshing:

2,261 bushels of wheat, at 4c.....	\$ 90 52
Extra labor.	22 00
Regular labor.....	5 00
Feed for home stock.....	2 80
Mending bags.....	46
Board for labor.....	9 80
Feed for extra stock.....	3 20
Three tons of coal.....	8 00
	\$141 78

Summary:

Preparing ground, seeding fertilizer, seed wheat, &c.....	\$ 382 70
Harvesting.....	48 70
Threshing.....	141 78
Freight and commission on 1020.75 bushels wheat shipped (one half).....	47 98
Freight and commission on 75 bus. shipped..	3 33
	\$624 39

Total cost.....	\$624 39
Cost per acre.....	4 96
Total quantity of wheat grown, 2,362 bushels (measured by weight).	
Tenant's share of wheat, 1,181 bushels.	
Cost per bushel to market.....	53
Sale of 1096 bushels.....	806 42
Seed, 85 "	62 41
	1181 "

Total returns.....	\$868 83
Total cost.....	624 39
	\$244 44
Net profit 126 acres.....	244 44
Net profit 1 acre.....	1 94
Net profit 1 bushel.....	20

Crop of 1900 and 1901—92 acres :

Total cost.....	\$426 46
Cost per acre.....	4 64
Cost per bushel to market.....	56
Net profit 1 bushel.....	11

Crop of 1901 and 1902—60 acres :

Total cost.....	\$343 46
Cost per acre.....	5 72
(Extra ditching and grubbing, more preparing of land on account of wire grass).	
Cost per bushel to market.....	66
Net profit 1 bushel.....	12

Crop of 1899 and 1900—Fertilizer used, 272 lbs. per acre; seed wheat, 1½ bushels per acre.

Crop of 1900 and 1901—Fertilizer used, 300 lbs. per acre; seed wheat, 1½ bushels per acre.

Crop of 1901 and 1902—Fertilizer used, 320 lbs. per acre; seed wheat, 1½ bushels per acre.

Composition of Fertilizer used—

200	pounds	muriate	potash.
100	“	“	magnesia.
400	“	tankage.	
1300	“	S. C. Rock.	

2000

I send you this statement, and should like to get the ideas of some experienced farmers as to why they sow wheat when they know their land will not produce an average of more than 20 bushels per acre, and along with it sow grass to be killed to a great extent when they cut wheat by the hot sun.

Queen Anne Co., Md.

A SUBSCRIBER.

In past years we have published similar statements to the above, showing the cost of producing wheat in the South. They, like this one, have gone to prove conclusively that producing only 20 or 25 bushels to the acre cannot result in a living profit when either rent or interest on the value of the land is taken into account. In the case of our correspondent the owner of the land was the party best paid. He got a good rent for his land. The lesson taught by the above statement is the one we have been endeavoring to enforce for years. Grow wheat on land specially adapted for its production. Prepare the land better. There is more in the preparation of the land before seeding than in the fertilizer used. Adopt and follow a system of rotation that will bring at least one leguminous crop in between each wheat crop, and better still, two, and thus grow the nitrogen needed, rather than have to buy it, and thus reduce the cost of fertilizer to the phosphoric acid required. We doubt much the need of potash for the wheat crop on land specially adapted to wheat. This should be land with a good percentage of clay in its composition, and clay is almost always rich enough in potash if it is only rendered available by the use of lime every few years, say once in five years, fifty bushels to the acre. This also will ensure clover, which will give the nitrogen needed by the wheat.—ED.

HOW TO FARM CLAY SOILS.

An Old English Authority on Clays.

Editor Southern Planter :

I have never had much experience in farming clay, because I have only a small patch on my farm, and that is not pure clay, but pure enough to coalesce and run together when wet, and become solid as unbaked brick when dry.

Clay soil has been pulverized by some natural agency like glacial action, or the ceaseless movement of tides and waves in former ages. "The mills of the gods grind slow, but they grind exceeding fine." The fineness of clay is its virtue and its bane. The finer the particles of the soil, the more readily the roots of plants can extract from it the materials for their formation, and I believe they take up some of the fine soil itself to construct their solid parts. The gigantic trees of California were not built up from merely water and air. Wheat plants have to have lime to stiffen the straw. The trouble is the finer the particles of the soil the closer they can crowd together when wet, and the harder the land will become when dry.

In *Hale's Husbandry*, published in London in 1758, it is said: "All clay lands are known by these qualities; they hold the water that falls on them, and when thoroughly wetted are a great while before they are dry; in the same manner, when thoroughly dry, they are not soon wetted. In a dry season the land cracks; if it be plowed when wet, it sticks like mortar; in a dry season, the plow tears it up in great hard clods, which are all clay at the bottom. For this reason where the coat of soil (the top soil) is not thick, the farmer must not plow deep, for he will injure his land by mixing the clay among it. Clayey soils require a great deal of industry and care, as well as knowledge in dressing and management; but when the toughness is overcome so that the farmer can get his grain into them and see it well covered, they very often yield large crops. The mixed soil over these beds of clay is generally of considerable thickness. This is happy for the farmer, as it gives him the liberty of plowing deep, which this kind of land requires more than any other.

The first method for improving this soil is by frequent repeating of these deep plowings to break and separate clods over and over, as the sun and air calcine them. To this is to be added the assistance of dressings. It is the particular quality of this clay that it will receive all kinds of manures, and be improved by them; but the labor must be equal to the expense, for without this frequent plowing, nothing will take effect upon it. In Northamptonshire they manure it with lime rubbish to some advantage; in Hertfordshire they use soot and ashes; but that

which agrees best of all with its nature is chalk. It may be remarked of clayey soils in general, that although no ground is so stubborn or so barren when neglected, none has so many good qualities when it has been thoroughly wrought. The more tough and stubborn these soils are, the richer they prove when they are thoroughly subdued."

The reader will pardon me for making so long an extract from a book, as the book is an old one and out of print, and shows that agricultural science had arrived at a high degree of perfection in Great Britain 144 years ago, and that the farmers of England at that time knew the best method of handling different soils.

It sounds a little strange to American ears to hear of putting *chalk* on land for manure, but chalk is more plentiful in England than plaster in the State of New York, and is no doubt, as stated by Hale, the best fertilizer for heavy clay lands. Throughout the extensive chalk district in England the practice of spreading this substance over the surface of the land has prevailed from the remotest times. In the case of the Lincolnshire wolds, once as celebrated for desolate barrenness as they are now for high culture and smiling fertility, chalking was one of the important means of bringing about this wonderful improvement.

Clay is sometimes called alumine, or argillaceous earth. It is the worst kind of soil with which a farmer has to contend. It can be ameliorated by a mixture of sand, or any other substance like rotten manure, which serves to keep the particles of clay separate, thereby destroying its tenacity and ability to harden.

Clay soils are benefited by being plowed in the fall, the winter freezing tending to loosen the clods.

I knew a man who put 200 tons of river sand and ten tons of fine manure on his clay garden, and made it as mellow as the garden of Eden.

A certain proportion of clay is indispensable for the formation of the best soils. A good wheat soil must contain at least 18 per cent. of clay. Good grass land requires at least 30 per cent. of clay.

J. W. INGHAM.

GRASS SEEDING AND HAY PRODUCTION.

In our last issue we wrote at some length on this subject. In connection with what we then said, we think that the following article, contributed by Mr. Clark, of Higganum, Conn., to the *American Cultivator*, may be read with interest and profit. Mr. Clark has made a reputation during the last few years as the producer of the heaviest crops of hay in the country :

"I had hoped to give you some points on my grass crop of this year while it was growing, but lack of

time prevented. The early spring was cold and dry, so that the use of fertilizers was not as effective as it would otherwise have been. In fact, while later on we had plenty of rain, it was so cold that the grass crop of the entire eastern and northern sections is, as a whole, rather light. Too many farmers depend on the Lord for making a crop of grass without aid.

Some changes in my field give me 14½ acres, on which I sowed \$208-worth of fertilizers, a little less than \$16 worth per acre, or \$3.25 per ton of hay produced. The total product was 128,874 pounds.

Five acres of the field were badly washed by a cloudburst the last of August, in 1901. This was reseeded the tenth of September, which gave but little time to cultivate, aerate and renew the soil. This portion of the field produced but 2½ tons to the acre, and one acre in a shady orchard produced but little over two tons.

Of this field 1½ acres produced 10,947 pounds; 4¼ acres produced 46,134 pounds; 2¾ acres newly sown, produced 27,107 pounds, while seven eighths of an acre yielded 11,850 pounds or at the rate of 13,331 pounds to the acre.

This field has been seeded thirteen years, and thirteen first crops and twelve second crops (a total of 102 tons) have been taken from one seeding. On one section of five eighths of an acre the yield was 8545 pounds, or at the rate of 13,672 pounds to the acre. The two sections, seven-eighths of an acre and five eighths of an acre, or a total of 1½ acres, gave over ten tons to the first crop, and for the second crop I hope for four to five tons more. These two sections are natural grass lands, with clay, gravel, hardpan soil, with just grade enough to carry off the water from the surface, moist, wet, underdrained, with no vegetable matter. "Cold, wet, unproductive"—that was its record.

Land that will carry subsoil water is wanted. Man provides the rest. The cost of producing a ton of hay on this kind of land is less than \$2, or less than \$4 per ton in the barn. On an experimental piece of one-half acre, which was cut up with the "Double Action Harrow," which has been seeded two years, taken up Sept. 1, 1901, and seeded fifteen days later, the product was 4810 pounds, or at the rate of, 9620 pounds per acre.

As above stated the total yield from the 14½ acres was 128 874 pounds of well cured hay. I have the exact cost of a ton of dry hay, including fertilizer, spreading, cutting, curing and putting the hay in the barn, which is \$4.95. I call it \$5 per ton. Seven acres of this were reseeded from the tenth to the fifteenth of September, 1901 when it should have been seeded Sept. 1, 1901, and would have given a better crop. The total yield of the seven acres of new seeded ground was 46,677 pounds, or an average of 7778 pounds, which is 212 pounds less than four tons to the acre, nine months from the day of seeding, and that under very unfavorable circumstances.

This is conclusive evidence to me that if we want to grow grass we had better sow grass seed, and if wheat, rye or other grain, or, in fact, any other crop, we had better sow them by themselves to achieve success, for it is certain that a proper grass stand cannot be obtained with any other crop.

My grass crop this year confirms more fully, if possible, three things: First, that grass should always be sown by itself; second, that timothy and red top in

equal parts are correct proportions; and third, that intense cultivation is absolutely necessary for success.

The outlook, this year, for a second crop is good. I am now sowing the fertilizer for that crop. I fertilize for every crop, and use one third each of bone, muriate of potash and nitrate of soda, as per instructions in my grass circular.

The truth of my statements in relation to grass culture have been questioned. To all such questioners, I would say the facts which I have found are utterly beyond what any of us would have thought possible to obtain twenty years ago. Nevertheless, my statements are true. Those who come here and examine for themselves (and there are hundreds of visitors) go away convinced of the fact.

I have personally answered more than twenty thousand letters, and sent out more than twenty thousand circulars concerning the grass culture in the last two years. I have a sufficient supply of circulars yet on hand, and to all who would like my experience, and who will send a two cent stamp, I will send a circular and cheerfully answer any questions they may ask. On the other hand, if they desire to visit me here I will cheerfully give them my time and any information possible. This is no toy. You would not think so if you had stood by me while pitching on forty two of the sixty six loads which were put into the barn on the twelfth day of July. I will report later about my second crop of hay."

ENQUIRER'S COLUMN.

Enquiries should be sent to the office of *The Southern Planter*, Richmond, Va., not later than the 15th of the month, for replies to appear in the next month's issue of the *Planter*.

Onion Growing.

Please state through the *Planter* when onions should be planted, what variety for market, etc. How would rich low land suit, which is subject to overflow?

Mecklenburg Co., Va.

OLD SUBSCRIBER.

Onions may be grown either from sets or seed planted or sown in the fall or spring, according to the variety. They require rich, loam land, but should not be planted or sown on land subject to overflow. The land should be well drained and finely worked, and be kept free from weeds. The Yellow Potato onion is one of the best varieties for fall planting. This onion is always grown from sets, as it does not make seed. Plant the sets in September or October in rows eighteen inches apart and nine inches apart in the row, and cover about an inch deep. This onion makes a fine crop for selling in the early spring market green, or it may be allowed to ripen, and will be ready for shipping in June. Early White Pearl, Yellow Danvers, and Silver Skin sets may also be set out in the fall, but are more usually planted in spring, except in the warm trucking sections of Tidewater.

Onions grown from seed may be raised either by sowing the seed in beds in the fall, say, in September,

and transplanting in October or November or in the spring, into rows twelve to fifteen inches apart and four to six inches apart in the rows, or the seed may be sown thinly in the rows in spring and be there allowed to grow to maturity. The best varieties of the seed onions are White Bermuda, White Pearl, Southport Globe, Yellow Danvers, or Red Wethersfield.—ED.

Preventing Washing of Land.

A new-comer into the hill section of the Piedmont range of Virginia, I am an enquirer for information, through your valuable publication, as to the best method of cultivation or preparation of these lands to prevent so large a portion of the surface soil washing off. From a limited experience and observation, it appears this question is of great importance to every farmer.

I wish to keep my land open for orchard culture. In the new fields it is important to prepare properly before setting the trees.

T. W. DEXTER.

Albemarle Co., Va.

The true remedy for the washing of the hill lands of the South is deep plowing and subsoiling and the filling of the soil with humus. The soil washes off because the subsoil is so compact that the water (falling on the surface) cannot get into it, and because the soil itself is so devoid of vegetable matter that it cannot absorb and hold the rainfall. Plow deep and subsoil wherever possible, and then sow Crimson clover (10 lbs. to the acre), Hairy vetch or English vetch (25 to 30 lbs. to the acre), with half or three quarters of a bushel of wheat, oats or rye, or a mixture of all three grains, in the early fall (September or October). Plow this crop down in the spring and follow with cow-peas, or a mixture of cow-peas and sorghum, in May or June. This crop may either be cut for hay or be grazed with hogs or cattle or be plowed down in the fall and be followed again with Crimson clover and the mixed grains, in the fall. This second crop may be either grazed or cut for hay or plowed down, as the condition of the soil would seem to warrant, and the land may then be put into corn or other forage crops and be seeded to grass and red clover in August or September. A dressing of farm-yard manure each year, or the application of 300 or 400 lbs. to the acre of acid phosphate, will greatly help to secure a heavy crop of the Crimson clover and cow-peas, and thus make more vegetable matter to put into the soil. Always plow deep and keep the subsoil open.—ED.

Lame Horse—Flies on Cattle.

1. I have a fine young mare, lame in her hip, which is worse when trotting and very sensitive to touch and has been so for several months. I have no idea what causes the trouble, as she has been kindly handled. Two years ago, when I was riding her, she slipped on a hillside and sprained my ankle,

but I don't think she injured her hip there, for it never seemed to bother her until months after. Any remedy you would advise would be gratefully received.

2. Do you know of any preparation on the market that will actually kill flies on cattle? I use as a spray, a preparation of "Kill Fly," but it only drives them away without killing them.

I enjoy the *Planter* greatly, and think any farmer who does without it makes a big mistake.

Richmond Co., Va. W. GRAY BROCKENBROUGH.

1. The lameness is most probably caused by some injury to the hip joint caused by the accident you refer to. We would apply fly-blister to the sensitive part and give her rest.

2. We believe all the fly remedies on the market are merely repellants, and not destructive to flies. This is the character of those of which we have had reports. Their efficiency depends on the length of time during which their odor or stickiness makes them objectionable to the flies.—ED.

Bermuda Grass.

When should Bermuda Grass seed be sown? Please answer in the *Planter*.

Grayson Co., Va.

J. D. PERKINS.

Bermuda grass should always be seeded in spring, and even then it is a very uncertain crop. Bermuda grass makes no seed in this country. The imported seed is mostly got from Australia. The best way to secure a Bermuda sod is to get a sack of the roots from an old sod. These can be had from farmers generally for the asking or from seedsmen. The roots should then be run through a chaff cutting machine, and the cuttings be dropped in the furrow behind the plow a foot or eighteen inches apart two or three bits in a place. They will soon take root and make a sod.—ED.

Grass for Name.

Find enclosed a sample of grass for name (top and root). Is it of any value as a forage plant? I found several bunches in my garden.

LENA E. CRABTREE.

The sample sent is so small and so immature that we are unable to identify it. Send a plant with the seed stalk either in flower or just beginning to ripen, and we will name it and give its value.—ED.

The Draft of Wagons.

In answer to "Observant Farmer," page 476, August issue, I would say that about the same principles govern both the wagon and the locomotive, viz., power for the wagon requires that the line of draft correspond with the square of horse's shoulder. On this line he can pull more and do it easier. This is why front wheels are lower to get the hitch or load in

line with power. Then we make the hind wheel larger as it rolls easier. We make the body narrow as it turns around shorter. This is the philosophy of the wagon. In the case of the locomotive with low drive wheels a larger boiler can be used and at the same time be kept within limits of safety from overturning. That is the philosophy of the locomotive.

He is right as to farming not being an exact science. One thing is sure, when the right conditions for a crop to grow are secured then it will grow to perfection.

Nottoway Co., Va.

H. H.

Sick Hogs.

I have had hogs affected in the same way as those of J. H. Moore's, of Surry, and have always found clipping off the tail and the ear on the affected side to relieve them in a short while. I think it is caused by a flow of too much blood to the head.

Goochland Co., Va.

N. S. W.

Saving Alfalfa Seed.

I think I can give Mr. N. H. Calhoun the information he asks in regard to saving alfalfa seed. I have raised it in Kansas and Canada. The crop needs cutting when most of the seed is ripe. If you wait for it to quit blooming much seed will be lost. Then handle as clover. The seed comes out easy. Any machine that will thresh timothy will thresh it. It is not necessary to have a clover huller in order to get all the seed.

Surry Co., Va.

D. MENZEL.

Tobacco Curing by Flues.

We want information to teach us how to use the flue in the tobacco barn all in detail. How and where the flue ought to be set?

Dinwiddie Co., Va.

JOSEPH SEDIVY.

A barn for flue curing tobacco must be made tight, all cracks being closed. The furnace is set at one end with the fire-box opening on the outside of the barn, so that it can be fired without opening the barn. The flue runs across the barn and returns back to the chimney, which is set at the end near the furnace outside the barn. These flues and furnaces are made of sheet-iron, and are supplied by the hardware men in all the cities in the bright tobacco sections. The tobacco is hung in the barn in as fresh a state as possible and the firing begins immediately, so that the heat will ascend into the tobacco whilst the leaves are stiff. Three days are needed to cure a barn, and it takes from two to three cords of wood. It requires very careful judgment and observation to cure bright tobacco properly, and the work should not be attempted without the supervision of an expert curer or the tobacco may be ruined. Nothing but experience can teach the true way. When the fires are started a thermometer is hung on a level with the bottom leaves and is carefully watched day and night, and the plants are carefully examined at frequent intervals. The heat must

be increased very gradually but must never be checked. It must never be so intense as to cause sweating. The first process in the curing is to maintain a temperature of 80° or 90° until the leaf is yellowed. This requires from eighteen to thirty six hours. After the yellowing the heat is raised 5° or 10° at a time, and held at each stage for one or two hours until it has attained a temperature of 115° or 120°, where it is held for several hours until the leaf is thoroughly cured. After this the stalk has to be cured by raising the temperature to 160°, to 175° by stages of 5 or 10 degrees per hour, and keeping the temperature at this point until the stalk is thoroughly cured. After this the barn is opened and the fires go out. The tobacco is then taken down and bulked on the sticks in piles. It is left in this way several days and then rehung, being crowded very close to prevent injury from atmospheric changes. The leaves are afterwards stripped from the stalks and bulked down and left for one or two months when the color becomes fixed and the slight greenish tinge is removed.—ED.

Rat Poison.

Will you kindly advise me through your columns the name and address of the manufacturers of the Pasteur's rat poison you mentioned in the *Planter* some months ago as I wish to do some exterminating along these lines.

"CABIN POINT."

Pasteur Vaccine Company, Limited, Chicago, Illinois.—ED.

Canada Peas.

1. What is the proper time to seed Canada peas in this section?

2. Where can I get seed, and what is the best variety?

3. Give time of harvest.

I have been told I could sow these peas here in December or January and harvest the crop in June.

Washington Co., Va.

A. S.

1. Canada peas in your section should be sown in January or February, as soon as the land will work. They should be put in deep, say have four or five inches cover, and it is well always to sow a light seeding of oats with them to hold them up. The peas should be sown first and be well covered either by planting them in with a drill or plowing them down, and the oats be then seeded and harrowed in.

2. Wood & Sons, of this city, Seedsmen.

3. The crop is ready for harvesting in June. It is a cool weather crop. The peas mildew as soon as the hot weather sets in.—ED.

Ginseng.

Please publish in your next issue whether "ginseng" can be raised profitably or not in this section. What

will be the price of seed, and where can they be obtained?

Sussex Co., Va.

G. W. EPPES.

We have no doubt but that ginseng can be grown in this State, but whether profitably or not we cannot say. It is a crop that requires several years to grow in order that the roots may reach a marketable size. The seed and full information as to growing the crop can be had from the American Ginseng Gardens, Rose Hill, New York, who advertised in the *Planter* last spring.—ED.

Cow-Peas for Seed—Crimson Clover.

Please tell me in your next issue, if you can conveniently do so, how to raise and harvest cow-peas for seed. What machinery is required? Can they be harvested and threshed by machinery? Also please answer the same questions with regard to Crimson clover. How many bushels of cow-peas ought I to expect from an acre of land that will grow five barrels of corn (25 bushels shelled corn) without manure or fertilizer of any kind? How many bushels of Crimson clover from the same land? Could I seed my corn land at its last working to Crimson clover, harvest the seed from same in the spring, then seed to cow peas and mature the cow-pea seed? The farm is in Anne Arundel county, Maryland, midway between Washington and Baltimore. I trust that you will not refer me to manufacturers of machines claiming to harvest and thresh cow-peas, but tell me exactly how the work is done where the cow-pea is grown for seed.

Anne Arundel Co., Md.

F. E. BANKHAGER, JR.

If you will refer to page 396, July issue 1902, you will find full instructions as to growing cow-peas for seed and also as to threshing out the seed. This article is based on information given us by a subscriber who grows a large quantity of peas for the seed every year. He told us a few days ago that he had made, threshing the peas with his grain separator, a perfect success. By running the same at about one third the speed he runs it for threshing wheat and the removal of part of the concaves he last year threshed out between 100 and 200 bushels of seed with the loss of less than 10 bushels of broken peas. You should make from 15 to 25 bushels of cow-peas per acre on such land as you describe. Crimson clover makes about the same quantity of seed per acre as red clover and requires to be handled in the same way if to be sold. If for use only at home many of our subscribers merely knock out the seed with a flail and sow it unhulled. It requires more to be sown per acre when used in this way, but grows just as well.

You can seed your corn land in Crimson clover at the last working and harvest the same and follow with cow-peas in time to mature seed peas.—ED.

When corresponding with advertisers, kindly mention the *Southern Planter*.

Trucking, Garden and Orchard.

WORK FOR THE MONTH.

The harvesting shipping and storing of the crops raised in the garden, orchard and truck patches is work which will call for constant attention during this and the following month. See to it that no damaged or unsound products are shipped or stored. Let these be used at once either in the house or be given to the stock. If shipped they will heavily reduce the price for which the consignment will sell, and if stored they will soon infect the sound products and cause loss of the whole. All fruit, roots and vegetables should be picked, dug and cut only when dry and then be stored temporarily in a cool, dry airy room or shed, not in too large bulk, and be there kept until they have passed through the sweat or heating which they will naturally enter upon. If the quantity is too large to store under cover, pile in heaps and cover with straw and boards to keep out the rain. When the sweating is over let the products be carefully sorted over again and all showing any indication of unsoundness be culled out and the rest be shipped or stored. Apples and pears keep best stored in slatted bins or ventilated barrels in cold, dry airy rooms where the frost can be excluded. Roots keep best stored in cellars or pits covered well with dry straw. Onions keep best on slatted shelves.

The land should be got ready for winter kale, spinach and cabbage crops. Prepare thoroughly and make it rich with farm-yard manure and high-grade fertilizer. All these crops call for plenty of potash in the soil. Kale and spinach should be seeded in the rows where they are intended to grow and mature, and the rows should be wide enough apart to permit of cultivation. Seed lightly, so that the plants may have room to grow. Cabbage plants should be raised in beds and be set out in the rows in October and November. If plants for late fall cabbage have been raised as we advised in last months' issue they should now be planted out in the rows and their growth be pushed by frequent cultivation and the application of a dressing of nitrate of soda at the rate of 100 pounds to the acre. Cabbage plants intended for the early spring crop should not be raised on too rich land. The object is to grow short, stout, well-rooted plants, and this can best be done by not making the land too rich but by preparing it well and giving a light manuring and giving the plants room to grow. When raised in this way the plants will grow right away when transplanted into the rows.

Potato onion sets should be planted out this month

in rich well prepared land. Set in rows 15 or 18 inches apart and 8 inches apart in the rows. These onions make the earliest crop of green onions for bunching for the spring markets. Sets of the seed varieties, like Yellow Danvers and Silver Skin, may be set out during this and the following month in mild localities or where they can be protected by mats or brush in hard spells of weather.

Seed may be sown in beds to raise plants of the different seed varieties of onions for planting out in the spring. These beds should be where they can be covered with mats or brush in the winter or hard spells of weather. Sow the seed thinly. The Bermuda, White Globe, Yellow Danvers and Red Wethersfield are good varieties to sow.

Lettnce seed should be sown to raise plants for the cold frames and hot-beds and for setting out in the spring. Make the beds where they will be sheltered from the coldest weather and where they can be protected with mats or brush in the winter.

Radish seed may be sown for the fall crop.

Strawberries may be planted out during this and the following month. In this issue will be found an article dealing more fully with this crop.

Clean up all trash, vines and vegetable refuse of every kind, and either burn or compost with hot farm-yard manure, so that insect life and fungoid disease germs may be destroyed.

Sow Crimson clover on all vacant land to conserve and improve fertility.

A WORD OF ENCOURAGEMENT TO COUNTRY GARDENERS.

Editor Southern Planter :

I read with interest your Trucking and Gardening Department, and think, as I guess many do, that I could do so much were I near market, but there is something we can do even twenty-five miles from a market with no way of transportation except weekly market wagons. I have a quarter of an acre enclosed for a garden. I raise two crops on all of it except on the butter bean and tomato land. Sometimes I set the tomato plants in the onion patch and thus get two crops there. Besides furnishing an abundant supply of vegetables for a family of nine or ten the year round I sell \$8 to \$10

worth from it every year. We sell a few quarts of strawberries and a dollar's worth or two of onions, a bushel or two of early Irish potatoes, which always pay well if very early, then early cabbage, and butter beans, 40 or 50 quarts of beans at from 8 to 15 cents per quart. I raise the dwarf beans as they take less room and bear earlier. I plant my potato land to Navy beans; they always sell well dry. This garden is worked entirely by the women and children of the family after the land is broken in the spring with the plow, so you see we get our pin money out of it after enjoying all the nice vegetables and small fruits, with a few hours of healthful exercise in the early morning and late evening.

Goochland Co., Va.

A CONSTANT READER.

STRAWBERRY CULTURE.

Late Summer Work.

Editor Southern Planter:

Stir the soil by shallow culture as soon after each packing rain as it is in proper condition. This serves a two-fold purpose. It kills all grass and weeds easily and long before they attain dangerous proportion. and what is equally, if not more valuable, is that it conserves moisture by breaking the crust and destroying the pores or capillaries by means of which the water in the soil passes upward to the surface to be lost by evaporation.

We break the middles of the rows with a small tooth cultivator and stir around and between the plants with light hand hoes, taking pains not to go too deep, especially near the plants. An inch deep near the plants increasing gradually to about two inches farther off is about right. Where there is not much grass to cut up, forked potato hoes answer the purpose perfectly.

The runners should also have careful attention at this season. If the soil is rich and the season wet they crawl about almost like snakes. If the stool or hill system, the best with most varieties, is to be followed, the runners must be clipped off as fast as they appear. If allowed to grow and dangle on the parent plant, it is weakened and the coming crop lessened thereby. We have never seen but one runner cutting device that worked well—a boy with a knife and an eye on the boy. It is exceedingly fast and simple work if done in time and costs but little. Runner-cutting machines do not cut the runners close enough to the old plant. They must always be cut between the old plant and the first joint, else a plant will form at the joint and dangle there a most harmful parasite till winter kills it.

Look well after the borders of your strawberry fields

and the ditch banks. Dig up or mow down all weeds before they get large enough to "draw" the neighboring plants. The dryer the season the worse the "drawing." Trees also do much harm this way by sending their roots in the strawberry fields, robbing them of moisture and nourishment. It is a good plan to cut these pilfering roots. We do it by means of a sharp spade driven down deep around the outer border of the field next to the trees, using a mattock or grubbing hoe when a root is found too large for the spade to cut.

O. W. BLACKNALL.

Kittrell, N. C.

PRUNING ORCHARDS.

Editor Southern Planter:

I see a number of items in the *Planter* in relation to the pruning of apple trees, and as to the proper time, to induce wood growth and bearing.

Having been raised on a farm where fruit culture was a considerable item, and having on my own account renovated and improved two large orchards, the trees varying from eight to twenty-five years in age, my experience may be of service. I have always thought the best time to prune a tree was when the knife was sharp and the tree needed the application. Young trees sometimes make too much wood, these I would shorten in August. If they did not make growth enough, I would apply more fertilizer and give good and frequent cultivation.

Experience teaches me that the greatest reason for trees not bearing is a lack of sufficient nourishment. As to cutting rings of bark off the limbs to induce bearing, this is too much like cutting the cow's ears off to increase her milking qualities. I also notice that many young trees are spoiled by pruning too much in the centre of the top. That will injure the bearing. The head should only be sufficiently opened to admit plenty of air and prevent overlapping limbs.

Frequently the trees get too close and matted on the outside.

From where I write I can see some apple trees that are so matted that a bird can hardly fly in, yet in the centre there is a large open space where there are no limbs for apples to grow on. In such a case I would train limbs to fill in the centre and open or thin the outside. I recollect an orchard that did not commence to bear till the trees were sixteen years old, and evidently the reason was too much centre pruning as the trees had plenty of care, good cultivation and fertilization.

In renovating my orchards I first pruned to suit my taste. Some of the older trees were moss grown. That was removed with a moss scraper after rains. I manured the land well, but did not let any come nearer

than three feet of the trunks of the trees. Next to the trees I put rotted chip dirt, and when the leaves were well started I gave the trees a good coat of lime wash, being careful to spill a good deal around the roots. Then I plowed the land and planted a hoed crop, and in the fall seeded to rye and clover.

One of these orchards had been condemned as a non-bearer, but since treatment it has produced as well as any in the community, only having failed two years in fifteen.

A large fruit grower once told me never to sow rye in an orchard. What harm could result from rye more than any other crop?

Goochland Co., Va.

EXODES.

**HOW TO RAISE A GOOD CROP OF STRAWBER-
RIES NEXT SPRING FROM PLANTS SET THIS
FALL.**

With a little extra pains in preparing the soil and setting the plants a very good crop of strawberries may be gathered next spring from plants set this fall. The largest and earliest berries are always produced by fall set plants.

Wherever practicable the best forerunner of the strawberry is the cow pea. The peas should have been sown, or better still, drilled, early in June. About September 1st the pea vines can be cut for forage. As the fertilizing properties of the pea vine reside largely in the roots it probably, as a rule, pays better to make forage of the vines than to plow them under, especially as the plowing under of a rank crop of pea vines is a difficult and uncertain job. Still if it can be successfully accomplished and the soil contains but little vegetable matter, it will pay better to plow under than to cut the vines.

PREPARE THE SOIL THOROUGHLY.

This thorough preparation is very simple in light soil. It consists simply in plowing to a depth of six or eight inches. On stiff, cloddy soil it is more difficult. Thorough preparation, then, consists of completely pulverizing these clods. This can usually be pretty well done by harrowing, though rolling makes it more complete.

This done, one must decide as to what system of culture he will follow—the intensive system or ordinary field culture. The intensive system means more plants at the beginning, more manure, and more cultivation, and at the end more berries.

If I had an acre or more or less than an acre, and wished to obtain from it the best possible results in strawberries, I would proceed as follows, the soil being prepared as above recommended:

Scatter broadcast stable manure at the rate of 100 to 200 good loads an acre. If I had 100 or 200 bushels of wood ashes I would put them in, too, taking pains to scatter both very evenly and to mix well with the soil by repeated plowing and cross plowing. Lacking these, I should apply broadcast cotton-seed meal at the rate of 2,000 to 4,000 lbs. per acre. If preferred, 200 to 300 bushels of cotton seed can be used instead

of the meal, but if the seed are used they must first be thoroughly "killed" by wetting and leaving in piles until fermentation kills the germ. If not, the seed will endeavor to make cotton instead of fertilizer. I have known them to come up even when sown "unkilled" in cold weather. Ashes will also go very well with the cotton seed or meal.

It must be borne in mind that this is very heavy manuring, and that such heavy manuring is safe in fall planting only when it is thoroughly mixed with the soil. Unless this is done, too much manure would be likely to come in immediate contact with the plant roots and do great harm if the weather should be dry.

The next thing is to get stout, vigorous well rooted plants. Much depends on good plants of good varieties. The growing season is now limited, and a plant large and stout when set, besides being surer to live and quicker to grow off, has in its size a very great advantage. It will even be larger in proportion when berry time comes than a small plant would be.

September and October are the best months for fall planting. The ground properly prepared and good plants obtained, set them fifteen inches apart and let the rows be fifteen inches apart, but between every series of three rows leave two feet for a walkway for cultivating and gathering berries. Unless the soil is naturally wet, raise no bed on which to set the plants, but let all be on a level. If necessary to raise the bed a little, the walking space between the beds must be broader, say two and a half feet. Set the plants by means of a line, opening holes large and deep enough to admit of spreading the roots in a vertical position; press the earth firmly around the roots. If the soil is dry at planting, pour water in the holes before setting the plants.

Unless the soil is infested by winter-growing weeds, very little cultivation will be needed till the spring; still, if a hard packing rain should fall soon after planting, a light working with hand hoes promotes growth.

If the liberal quantities of manure mentioned have been applied, no more will be needed before berry time, but if only the stable manure or only the cotton seed or meal has been applied, it will pay to apply around or between the plants a month before the time for them to bloom, either a liberal quantity of ashes or a soluble fertilizer rich in potash. When the ingredients can be obtained, the following formula gives a perfect top dressing manure for average soils per acre:

- Nitrate of soda 100 lbs.
- Sulphate of potash 100 lbs.
- Acid phosphate or dissolved bone . . 300 lbs.

The nitrate of soda can be omitted if the heavy application of stable manure or cotton-seed meal was used.

Care must be taken to destroy all weeds by shallow cultivation early in the spring. A mulch should be applied just before growth begins in the spring. This mulch is to keep the berries clean, and should be evenly spread just deep enough to hide the plants when spread. The first rain will beat it down neatly around the plants. If weeds push up through the mulch, pull them out. Pine straw, whenever obtainable, makes the best mulch, but almost any kind of straw or litter can be used.

At the North, and especially on wet soils given to heaving in heavy freezes, it is best to mulch the plants well as soon as very cold weather sets in and remove the mulch in early spring, scattering it then around and between the plants.

For ordinary field culture, the plants should be set in rows two and a half or three feet apart and twelve or fifteen inches apart in the row. The same plan as to manuring can be followed, using it in such quantities as practicable. If cotton seed meal or the seed is used in only moderate quantities, say 500 to 800 lbs. meal or fifty bushels of seed per acre, it should be applied in the drill, mixing it well with the soil by running a cultivator down the row before the lists are made. These lists should be knocked down very low, about level. Follow same plan of culture as given for intensive culture. O. W. BLACKNALL.

PEAR BLIGHT.

The disease known as pear blight, and little understood until within a few years past, has been more than usually prevalent the present season. The leaves on some branch—usually a shoot of the present season's growth—die and the shoot soon turns black. Frequently this extends farther down to the older wood, and if no effort is made to stop the malady the tree dies outright. Sometimes it will stop one season, to begin again and run its entire course to the death of the tree next year.

The remedy is cutting and burning the affected branch, and this should be done as soon as possible. The cutting should be some distance below the point at which the disease seems to stop—six to twelve inches—so as to be certain of removing all the diseased wood. This sometimes disfigures the tree, but it is an effectual remedy if done properly and without delay.

The remedy is now known to be bacterial; a microscopic fungus; and it may be transmitted from one tree to another; which explains the burning part of the treatment recommended above. Even a knife used on a diseased branch will infect a healthy tree by cutting into it, unless the implement is disinfected. The simplest method of disinfection is by passing the knife blade slowly through the flame of a lamp, and this should be done at once.

The same malady affects some of the apple trees, and the quince trees occasionally, but it is not nearly so virulent, rarely or never killing the tree but stopping with shoots of the current season's growth. In this case it is called twig blight, and the remedy is the same.

Nearly or quite all varieties of the pear are subject to the blight, but some more than others, and some are so very liable to the disease that they are passing out of cultivation. Of this class are Limon, Adams, Pitmaston, Idaho, Brandywine, Collins, Paradise d'Automne, Hoosic, Moyamensing, Selleck, Kingsessing, Edmonds, Giffard, Glout morceau, Rostiezer, and a number of others. Even the fine old Flemish Beauty is so uncertain—or rather so certain to blight—that it is being passed by.

Of those which are but little affected with blight, Seckel and Tyson may be said to stand at the head. Howell would generally be placed with them, and may

as well be now, but this blighty season it is somewhat affected. Kieffer, when introduced twenty years or so ago, was said never to blight. But it will blight sometimes, though not a great deal. One of the most deservedly popular varieties, Bartlett, blights occasionally, but usually yields to prompt treatment. Its daughter, Clapp's Favorite, a very fine pear, understood to be a cross with Flemish Beauty, is nearly as subject to the disease as the latter variety. To the list of those little affected may be added also Bloodgood, which ripens the latter part of July, just before Tyson, and Anjou (formerly called Beurre d'Anjou), a late fall variety.

R. J. B.

THE DEWBERRY.

The growing of dewberries formed an interesting discussion at the meeting of the Missouri Horticultural Society. This fruit is considered by many to have an especially timely value to the fruit grower, as it ripens right after the strawberries and takes a useful place as a money maker when no funds are coming in from the sale of other fruits. There were not many present who had much experience in raising the dewberry, and probably from the lack of familiarity with this fruit, it was looked upon with more or less disfavor. Still, the fruit had its friends, who were emphatic in asserting that when the plants received proper attention they were great money makers. The cultivation of this berry should be much the same as for the strawberry, but preference should be given to gravelly soil.

L. A. Goodman, of Kansas City, Secretary of the Society, told a remarkable story about the dewberry. He said, a man who had great faith in the profits of this berry planted thirty-five acres, with the utmost confidence that he was going to make a fortune. After experimenting for two or three years with indifferent success, he became disgusted and plowed up the patch on account of borers. The following year he had a mammoth crop of dewberries and realized a large sum of money. He picked the berries for two or three years, and supposing that he had come to the end of his crop, he mowed down the vines and then set fire to the patch. He was astonished to see the following year that he had another tremendous crop of dewberries. Two or three years later he repeated the experiment of mowing and burning, and it was followed by splendid results. The past year he gathered fifteen carloads of dewberries, and they sold for \$2 a crate.

Apples and Pears Cracking.

When you can find space will you please give some reason for pears and apples cracking on the trees. I am sure many of your readers would fully appreciate some advice on the subject, I among the rest.

Chesterfield Co., Va.

H. D.

The cracking of the fruit is caused usually by a fungoid disease. Spraying the trees and fruit with Bordeaux mixture will kill the spores and thus obviate the trouble. The spraying should begin before the trees are in leaf and be continued at intervals until the fruit is well grown.

Live Stock and Dairy.

MAKING HOG MEAT IN THE SOUTH.

I desire to become a successful meat raiser—something like 6,000 lbs. per annum. Please give me some advice on this.

J. S. WILSON.

Wilson Co., N. C.

We take it that you use the word "meat" in the sense usually understood in the South—that is, hog meat—and hence reply as follows: Making pork or bacon in the South, if it is to be done properly and so as to compete in the market with Western meat, must be conducted on quite a different system from that adopted in the West. There the hog is merely a machine used to convert 10 to 20 cent corn into a marketable product at a profit, and the more corn he can eat the more he is appreciated. Here we cannot afford to feed 50 to 75 cent corn to make meat to sell at from four to five cents a pound. We must make our hog meat in some other way, so that only the minimum of corn shall be needed to fit it for home consumption or the market. This nature has provided that we may and can do if we only properly second her efforts. The hog in the South must be a grazing animal and not a corn eating machine; and the duty of each farmer is to provide such a succession of forage crops as shall permit of this grazing being carried on nearly the whole of the year, and for the balance of the year to be supplemented with root crops. In this way hog meat can be made at the minimum of cost and the consumption of corn be reduced to only that small quantity required to harden the meat just before killing. This system also admits of constant improvement of the land by the growth and grazing of these crops; and it is also healthier for the animals, rendering immunity from hog cholera almost certain if only supplemented with pure well or spring water. The crops required to carry out this idea are cow-peas, Soy beans, Canada peas, vetches, sorghum, corn, artichokes, peanuts, sweet potatoes, and turnips. These should be so planted in rotation as to come on in succession to supply the need of the hogs. To make the business easy of management, a piece of land large enough to grow the crops needed for the quantity of hogs to be kept should be divided into four or five fields and these open into a road so that the hogs can be turned into any field at will without crossing the fields. Each field or the road leading to the fields should have an abundant and constant supply of pure spring water accessible to the hogs, and shade should be provided either in the fields or accessible from the road to which the hogs can resort at any time. This time of the year is the proper one to set about the arrangement of the fields and the seeding of the first

crops. Let the fields be well fenced as a preliminary to any work of seeding. The hogs must be made to realize that they have got to stay where put, or they will make trouble for themselves and their owners. A good fence round each field soon accomplishes this end. To carry the number of hogs required to make 6,000 lbs. of meat, ten or twelve acres of good land should be divided into five fields. Two of these fields should be seeded as soon as possible with Crimson clover and Winter oats and wheat mixed together, say 10 lbs. of clover and half or three quarters of a bushel of the grain per acre. Next month sow another field with Sand vetch or English vetch and wheat, and in November or early in December, sow another field with Canada peas and oats, wheat or rye mixed. In February, or as soon in the spring as possible, sow the other field with rape. Put the hogs on to the Crimson clover and wheat first as soon as it is fit to graze. When the vetches and wheat are fit to pasture, take the hogs off the Crimson clover and put them on the vetches. Later, put them on the Canada peas. If more Crimson clover was seeded than was grazed, make into hay or turn down to improve the land. Plant one of the Crimson clover fields with sorghum in April or May, and the other one with artichokes in the same months. The vetches, rape and sorghum will provide pasturage until corn, sorghum, Soy beans and cow-peas are ready; these crops being planted on the different fields as the earlier crops are grazed off. When the first sorghum has been fed off, plow the field and seed to rape, or rape and ruta bagas or turnips for fall and early winter feeding. The artichokes will make winter feed to be rooted out by the hogs themselves. With such a variety and rotation of crops as is here suggested, supplemented if need be to carry the hogs always on full feed by peanuts and sweet potatoes in sections adapted to their growth, a herd of thirty or forty hogs can be grown and fattened every year, needing only a few bushels of corn to harden the meat just before killing. A prime requisite for success, however, is a herd of well-bred hogs. Razorbacks will not fill the bill. Get Berkshires, Essex, Jersey or Tamworths by preference for a hot climate. White hogs are good, but better for a cooler section than the South.

SALE OF SHORTHORNS AT HAMILTON, ONTARIO, CANADA.

At the opening sale of the Hamilton Stock Yards, Aug. 13th, 58 head of Shorthorns, consigned by a number of breeders, made the following excellent prices:

53 females sold for	\$21,520; an average of \$406.04
5 bulls sold for	3,155; an average of 631.00
58 head sold for	24,675; an average of 425.43



ALFALFÁ—STOMACH-WORMS IN SHEEP.

Editor Southern Planter :

We note what you say in relation to clipping alfalfa. We are large growers of alfalfa, my brother, Joseph E. Wing, being perhaps the first man to grow it on a large scale in the United States east of the Mississippi river. We clip it with the mower the first year, as you suggest, but *never* clip it high up, rather as close as the mower can be set, as that destroys more effectually the weeds and does not harm the alfalfa. We find that it needs rich soil; soil that has had a good deal of stable manure is best. We have some clay soil, limestone, not naturally very fertile but well manured, from which we have already this year cut two crops of at least three tons per acre, and it has now the third crop standing about ready to cut—a crop that will make over a ton—with the prospect of a fourth cutting in October. We have cut this season already near two hundred tons. Next year we expect to sow down forty acres more to this plant, the most profitable we have ever tried.

I note also your article on stomach-worms in sheep. No doubt it is true that cure is difficult and costly, though we have in the past had good success with gasoline treatment, which my brother discovered; but the only satisfactory treatment is prevention of infection, and that is easy. In Virginia, lambs ought to

be fat and gone to market before they could well be infected—pushed forward with grain and grass for June markets, or July at latest. The ewe lambs that are retained on the farm for breeders, should not be allowed to graze on the small grass plots that sheep graze over every year; infection is certain if they do, stagnant water or not; but should be kept in fields of oats, clover, alfalfa or new pastures. We find alfalfa pastures nearly a certain preventive of stomach-worms, and early yeaning of lambs makes them strong and resistant. Late dropped lambs are the most apt to succumb. Weaned lambs should be put in the corn-field, the clover field—anywhere where no old sheep have run, for old sheep carry over the stomach worm germs and infect the grass and the lambs in that manner.

I send you a photograph of some of our ewe lambs, Dorsets, going to pasture; the leading one was a very early lamb, and was shorn in spring. This bunch of lambs, without a grain of artificial feeding, weighed, August 4th, 120 lbs. They are now out of reach of parasites, on fresh alfalfa meadow. They do not need water on this succulent food.

Woodland Farm, Ohio.

WILLIS O. WING.

ROUGHNESS FOR WINTERING STEERS.

Attention was directed in a recent article to the increased gains on two year old steers on full feed by using such roughness as clover and cow-peas instead of timothy, and reference was made to the great difference of opinion in regard to the value of different kinds of roughness for full feeding. The man who winters cattle largely on roughness with a limited amount of grain, has long since learned that his steers will go to pasture in the spring weighing considerably more and in much more thrifty condition if the roughness be clover, cow-pea or alfalfa hay instead of timothy, millet or sorghum. The results of work along this line at the Missouri Station for a number of years show a larger difference, however, in favor of the clover than is commonly supposed to exist, as will be shown in the following summary of the first trial—December, 1899, to April, 1900, one hundred and one days, four yearling steers in one lot, fed four pounds shelled corn daily and all the roughness they would eat:

	<i>Pounds.</i>
Timothy Lot—	
Corn eaten	1,612
Timothy hay eaten	6,753
Total gain per lot	262
Average daily gain per steer65
Cow-pea Lot—	
Corn eaten	1,612
Cow-pea hay eaten	7,757
Total gain	622
Average daily gain per steer	1.54

Second trial—January to April, 1901; eighty days; six pounds shelled corn each daily and all the roughness they would eat; four steers in each lot:

Timothy Lot—	Pounds.
Corn eaten	1,920
Hay eaten.....	4,943
Total gain per lot.....	318
Average daily gain per steer.....	1
Clover Lot—	
Corn eaten.....	1,920
Hay eaten.....	5,719
Total gain per lot.....	641
Average daily gain per steer.....	2
Millet Lot—	
Corn eaten	1,920
Hay eaten.....	3,941
Total gain per lot.....	119
Average daily gain per steer.....	.37
Sorghum Lot—	
Corn eaten.....	1,920
Hay eaten.....	4,727
Total gain per lot.....	166
Average daily gain per steer.....	.52
Third trial—December, 1901, to April, 1902; 120 days; six pounds of shelled corn daily and all the roughness they would eat; four steers in each lot:	
Timothy Lot—	Pounds.
Corn eaten.....	2,880
Hay eaten.....	8,152
Total gain per lot.....	658
Average daily gain per steer.....	1.37
Clover Lot—	
Corn eaten.....	2,880
Hay eaten.....	9,123
Total gain per lot.....	929
Average daily gain per steer.....	1.92
Alfalfa Lot—	
Corn eaten.....	2,880
Hay eaten	8,148
Total gain per lot.....	780
Average daily gain per steer.....	1.63
Sorghum Lot—	
Corn eaten.....	2,880
Hay eaten.....	16,080
Total gain per lot.....	617
Average daily gain per steer.....	1.28

The superiority of hays such as clover, cow peas or alfalfa carrying a relatively large amount of protein over such hays as timothy, millet and sorghum, is strikingly shown in every trial, and agrees with the results referred to in a previous article, where the experiment was made with older cattle on full feed. In the first trial the gain produced by twenty nine bushels of corn and timothy hay was 262 pounds, while this amount of corn with cow-pea hay produced a gain of 622 pounds, or more than two and one-third times as much. In the second trial, thirty-four bushels of corn and timothy hay made 318 pounds of gain; the same quantity of corn and all the clover they would eat produced 641 pounds, or a little more than twice as much. When this amount of corn was fed in connection with millet, the gain was only 119 pounds, or little more than one sixth as much as with clover, while sorghum and corn showed a gain of 166 pounds, or a little more than one fourth as much as clover. In the third trial, the best gain is shown for timothy that we have ever been able to get, yet the gain for

this lot was 658 pounds, while the same amount of corn and clover shows a gain of 928 pounds, or over 40 per cent. more. In this trial, too, a better showing is made for sorghum than in the previous one, yet the gain for this lot was only 617 pounds as compared with 928 for clover, or a difference of over 50 per cent. in favor of clover. It will be noted also that it required but 9,123 pounds of clover to make the gain, while 16,080 pounds of sorghum were eaten for 617 pounds of gain. As in the case of the older cattle on full feed, the clover and alfalfa steers carried more bloom, shed their winter coats earlier, and showed every evidence of superior thrift and vigor.

Note the gains made by the steers on clover. In one trial, two pounds per day on considerably less than half feed, and in another trial 1.92 pounds, or practically two pounds. In winter we are usually content with two pounds on the average on full feed with older and larger cattle. Not only so, but the manure made by the clover is much richer and more valuable than that made from timothy or sorghum or millet. Thus, when we buy clover we add fertility to the farm rapidly, and when we grow clover, cow peas or alfalfa, we improve the soil even more rapidly, whereas when we grow timothy, sorghum or millet, the soil is impoverished.

In the light of these facts, it would seem that all farmers and stockmen would endeavor to grow more clover and under no circumstances sell any such material, and that if they have any hay to dispose of timothy should be sold, especially since it usually brings from one to two dollars per ton more on the market, does not carry off the farm so much fertility, and is not nearly so valuable to feed. Yet, cases where men sell their clover and keep their timothy for feed are not especially rare. In a subsequent article, the question of combining clover with corn fodder to bring its feeding value up will be considered.—H. J. WATERS, in *Breeders' Gazette*.

PREVENTING AND CURING TEXAS FEVER.

I feel under such obligation to you and those who have written for your columns during the past three years that it seems proper to report my results for the benefit of some other beginner. I think I have demonstrated that it is possible to raise good stock here in the South and to conquer the tick. First, I lost about \$1,000 worth of cattle by the tick before I knew what the trouble was. Last year I cured the few cases of tick fever that I had and this year not a tick has appeared on any stock. My method of clearing the farm of ticks has been this: The cattle were inspected almost daily during the entire season and no tick was allowed to mature and drop off. I prevented this by washing my cattle with a strong solution composed of water, kerosene oil and sulphur. If this solution is applied thoroughly it will kill the young ticks and the old ones as well. And if no ticks are allowed to mature and drop in the pastures the farm will soon be free of ticks.

But the tick gets in his work and kills his cow before you know he is present. It is therefore necessary to cure the sick animal. The finest cow in my herd today had last summer as bad a case of fever as I ever saw. My treatment was this: First the usual liberal drench of salts; then follow this with liberal drenches

of sulphur. I have lost only one animal since I began this treatment—and have saved quite a number. So I believe it is a remedy, properly so called.

How is a man whose farm is infested with ticks to start breeding good cattle? I proceeded this way: I bought an Aberdeen Angus bull one year old. I had a plot of grass—wire grass and clover in an old orchard, about one acre. I ran a wire about 100 feet long from one tree to another—then the ring at the end of the bull's chain was put on this wire. The bull could pass from tree to tree and graze about thirty feet on either side of the wire. As often as necessary the wire was moved. This gave the bull shade, exercise and his grass. The cows were brought to him. I have a fine bunch of twenty black calves, and now my bull is in the pasture and doing well.

Thus it seems to me that I am now safe in going ahead and selling all my grade cattle and putting in their places pure bred cattle. And this is my next step.—H. H. Williams, Orange county, N. C., in *Breeders' Gazette*.

SOME RECENT RECORDS AND SALES OF GUERNSEY CATTLE.

The following records of Guernsey cows have recently been made in accord with the requirements for entry in The Advanced Register of Guernsey Cattle. These records were made under the supervision of an Agricultural Experiment Station or Public Institution. Three of the records are of cows that were members of the Guernsey herd in the Pan-American Model Dairy Breed Test. These are Mary Marshall, Cassiopeia and Vega, whose owners carried forward their year's record after return:

Mary Marshall, 5604, owned formerly by Ezra Michener, of Cartersville, Pa., and now by A. C. Loring, of Minneapolis, Minn. Year's record, 8212.57 lbs. milk; 468.40 lbs. butter fat.

Cassiopeia, 4855, owned by James Logan Fisher, of Philadelphia, Pa. Year's record, 8528.23 lbs. milk; 365 15 lbs. butter fat.

Vega, 7214, owned by Messrs. M. M & E. J. Hollingsworth, Landenburg, Pa. Year's record, 7617.94 lbs. milk; 361.31 lbs. butter fat.

Maggie Hastings, 10503, owned by Ezra Michener, Cartersville, Pa. Year's record, 6590.78 lbs. milk; 313.57 lbs. butter fat.

Queen Bee, 6168, owned by Ezra Michener, Cartersville, Pa. Year's record, 6954 15 lbs. milk; 364 lbs. butter fat.

Cottie, of Elm Place, 14167, owned by G. B. Tallman, Perry, N. Y. Year's record, 7710 5 lbs. milk; 352.63 lbs. butter fat. This animal was but three years old. She calved in May, 1901. Her record commenced June 1, and she dropped another calf April 18 1902, being dry from March 24 until calving.

Elite, of Maplehurst, 8452, owned by G. B. Tallman, Perry, N. Y. Year's record, 9197.35 lbs. milk; 472 06 lbs. butter fat.

Dairymaid, of Elm Place, 14197, owned by G. B. Tallman, Perry, N. Y. Year's record, 9045.8 lbs. milk; 473 37 lbs. butter fat.

Belle Oceanie, 10069, owned by G. B. Tallman, Perry, N. Y. Year's record, 9152 9 lbs. milk; 487.36 lbs. butter fat.

Portia, of Maplehurst, 10071, owned by G. B. Tallman, Perry, N. Y. Year's record, 11622.65 lbs. milk; 602.37 lbs. butter fat.

Mr. Tallman has recently sold a number of animals to A. C. Loring, of Minneapolis. He writes of this sale: The price received for Portia is \$1,000. Pride of Maplehurst, No. 10070 (whose year's record is nearly completed and who will enter The Advanced Register), and her daughter, Katrida, of Elm Place, 14198, bring me \$1,000. For Elite, of Maplehurst 2d, 15057, a four weeks calf from Elite, of Maplehurst, 8452, is paid \$300. Mr. Loring secures 10 head of this Maplehurst family of Mr. Sisson and myself—any one of them carrying about 75 per cent. of the same blood of all the others, and any one of them giving promise of making cows capable of 500 pounds or over of butter fat, and carrying perfect udders. Mr. Murphy selected them and has displayed much skill and good judgment. There are about thirty females in this family, and only one among the number but carries a perfect udder. I have secured the balance of the family, including a full brother to Portia Malcolm, of Maplehurst 5626.

WM. H. CALDWELL, *Secretary*.

Peterboro, N. H.

COMBINATION SALE OF SHORTHORNS, POLLED ANGUS AND HEREFORDS IN VIRGINIA.

In our advertising columns will be found notice of a combination sale of pure bred cattle, which has been arranged to be held at the Fair of the Southwest Virginia Agricultural and Live Stock Association at Radford, Va., on October 14th. Amongst the noted breeders of the Southwest who have promised consignments are Major W. W. Bentley, Major Cowan, Mr. J. R. H. Bell, and Mr. Morgan. This will afford an opportunity for farmers to buy some of the choicest bred stock in the country, and should not be missed.

The export trade in horses has fallen away to almost nothing and yet prices paid on the open market are larger than they have ever been at this summer season of the year. It is obvious that the supply is very short and that the domestic demand is all sufficient to absorb all offerings. A few years ago horses were going beyond the seas at the rate of over 2 000 a month, and the summer dullness prevailed at the same time. This season the market is brisker than it has ever been and there is hardly a horse being shipped to foreign ports from any one of the great Western markets. It is plain, then, that the supply is so short that the domestic demand can take care of it in most excellent shape, and that for some time we need not look for any great competition from the foreigners. The truth of the matter is that prices are now so high for all desirable horses in this market that exporters cannot pay them and make anything at the other end. The season promised to be a great one in the export trade of carriage horses, but the postponement of the coronation of King Edward left many British dealers with more horses on hand than they could handle, and

then and there the British demand ceased. It was thought at that time that some fall in prices would follow the stoppage of all British orders in the American market, but it has turned out that the domestic demand has been far more than sufficient since then to take everything offered at rising values. Never in the middle of summer has the general market been so good.—*Breeders' Gazette.*

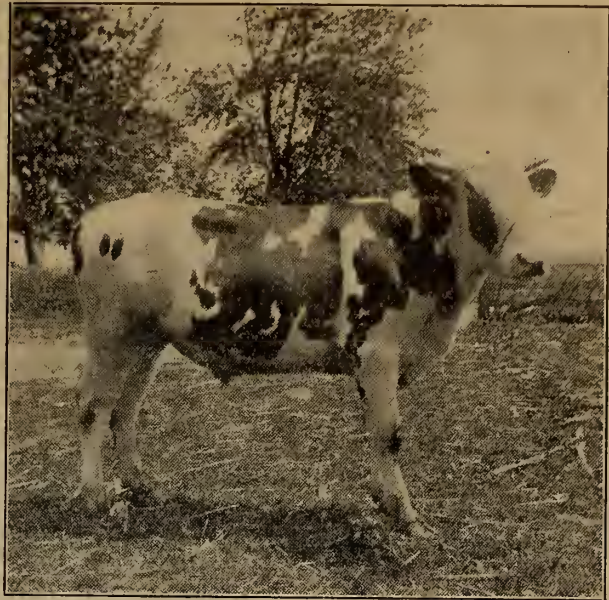
SELECTING A RAM.

To the breeder who produces pure bred sheep for the trade, or the farmer whose only aim it is to make the small flock pay in mutton and wool, the selection of a ram to head the flock is of supreme importance. By observation of the laws which govern reproduction of the animal kingdom, we are persuaded that in breeding the ram represents half the flock, if not more. When he is an animal the product of skilful breeding, and is individually prepotent, his character will be stamped upon the progeny to a high degree. This being true, it becomes necessary that in his selection only those characteristics are found to predominate which it is desired to reproduce. His pedigree, too, should show that he is descended from stock the distinctive peculiarities of which it will be no mistake to have stamped upon the progeny.

Thus it is that the successful breeder of sheep must have an ideal; he should know exactly what he wants, and in his efforts to attain it minor points must be sacrificed. With this ideal in mind a breeder, in choosing a ram, must not forget the qualities of the ewes with which he is to be mated. If there are weaknesses in the flock that have become prominent, the animal selected as its head should be one which gives promise of correcting them. In this connection, breed, type, size, constitution and quality of bone, wool and flesh should receive the closest consideration. The type and size will depend upon the breed selected, but strong constitution will only be seen in large heart girth, full chest, muscular neck, prominent eyes, and bright pink colored skin.

It is not unusual, especially at local shows, to meet sheep which, although registered, still possess characters better fitting their identification with some other breed. Such is simply a result of unintelligent mating, and goes to show that before success can be achieved a breeder must be a judge of the breed of his choice.

With the farmer whose only object it is to produce mutton and wool, one of the commonest errors is in selecting young and untested rams to head the flock. This mistake is usually seen in an absence of increase when the breeding season arrives. The head of the flock should be known to be a stock getter, and that of the right kind. The difference between the price of a lamb and a well tried shearing ram will not be much, and the older the sire, up to a reasonable limit, the greater the vigor possessed by the young things when they arrive. If for any reason a suitable yearling or older ram cannot be secured and it is found necessary to depend upon a ram lamb, he should be a strong and vigorous one, in good condition, and should be sparingly used, not more than twenty to twenty-five ewes being bred to him in the season, while he should be fed regularly during the service season a little grain, such as oats, peas and bran, to keep up his strength.—*Farmers' Advocate, Can.*



DEKOL 2d BUTTER BOY 3d.

The above picture is from a photograph of DeKol 2d Butter Boy 3d, No. 2, 29299, H. F. H. B., now owned by Thos. Fassitt & Sons, Sylmar, Md., taken on the day he was 1 year old.

He is sired by DeKol 2d Butter Boy 3d, a son of old Dekol 2d. Official test at 11 years old, 26 lbs. 9.21 oz. butter in 7 days, then the largest official test made. He is sired by Manar DeKol, a son of Netherland Hengeweld. At 8 years old she made an official record of 26 lbs. 10.66 oz. butter in 7 days. The dam of DeKol 2d Butter Boy 3d No. 2, Aaggie Lily's Pietertje Netherland, official record at 8 years 20 lbs. 3 oz. from 3 teats, the other quarter being lost from being stepped on. The average test of the milk for the week during the test was 4.2 per cent. and 60 lbs. of milk per day.

This young animal was placed at the farm as one of the service bulls of the above herd at a very long price, and the Messrs. Fassitt are expecting great results from his get.

FEEDING HOGS INDOORS.

In order to determine the value of indoor and outside feeding, the Ontario agricultural college fed hogs of several breeds out of doors and in a hog lot. Both those outside and in were fed twice a day what grain meal they would eat readily. This meal consisted of two parts barley to one part middlings by weight. The inside hogs were fed all they would eat of green feed, tares and rape being cut and taken to them. The hogs on the outside were allowed to pasture on rape and tares. Results show that the hogs outside ate more meal and made slower gains than those fed inside.

When corresponding with advertisers, kindly mention the *Southern Planter*.

The Poultry Yard.

THE BREEDING OF THE PEKIN DUCK.

The Care and Marketing of Ducklings.

(CONTINUED.)

Editor Southern Planter.

Many failures in raising ducks (as well as other poultry) are due to inexperienced persons launching into the business, conducting it in a haphazard go-as-you-please sort of way. A great injury too is done by the publication of a lot of "rot" pertaining to the business by theorists and idle writers, and this causes a number of innocent persons to engage in it, and the result is failure and disappointment along the line, and these cases are really a detriment and injury to the legitimate poultry business. When it comes down to the practical and hard work side of the question these very same writers do not know whether they would be right in feeding their chicks cracked wheat or "China nest eggs." The Pekin duck thrives wonderfully well in the South, and would be found very profitable handled on a large scale. Running water for them to bathe in is better for their thrift, as it is natural for a duck to dabble in water, although some large raisers do not have this facility and claim they do well. A duck can stand up to a trough of water and clean himself better than you can wash him in a bath tub.

Duck eggs being clear are more readily tested than dark shelled eggs. The eggs begin to pip on the 25th day of incubation, and require from two to three days for the hatch to clear the shell and nicely dry off; the youngsters are then ready to be transferred to the brooders, which should be for a few days kept at from 90 to 92 degrees, as they do not require quite as much heat at first as newly-hatched chicks.

For the first few days we feed a mixture of corn meal, bran and middlings, equal parts, or sufficient middlings to hold the mess together. Add to this some coarse and sharp sand. Do not neglect the sand, as it is very essential. Place in their pens a box of sharp sand. Give them water, either in galvanized iron fountains or "V" shaped troughs made of 2 x 3 stuff, which increase in size as the birds grow. Tack a strip over this, allowing them to get their bill but no more into the water.

Be careful not to feed an overplus of corn meal in the feed of ducklings the first ten days, as it is fatal.

During cold weather always give them tepid water. After the fourth or fifth day put a little ground beef scrap in their feed. Only a little at first or it may cause diarrhoea. Increase the scrap as they grow. At

the age of ten to twelve weeks, when they are ready to fatten, give them 10 to 12 per cent. beef scrap in their feed.

Ducklings will stand crowding in their pens better than chicks, but thrive best when in small lots. Do not shut them up too close in their brooders at night because some theorist said so. Use some judgment, a little horse sense, proper feed, and your ducklings will grow surprisingly fast.

Their great aim in life seems to be to eat, drink and grow. If confined in yards in the hot spring and summer months without shade ducklings often die from sunstroke. They fall on their backs, flounder around, and soon pass to the happy hunting grounds.

Trestle benches, with 1 x 12 x 16 foot boards placed on them, make a good temporary shade. It is a good plan to keep a lantern burning in your breeding houses at night for ducks. The nervous disposition of the Pekin duck causes them to injure each other in crowding and piling up, which they are sure to do at the slightest noise unless properly lighted. It is amusing to see the manoeuvres they go through on a dark night at any unusual noise when not sufficiently lighted.

Ducklings are also timid creatures, easily scared to stampeding, and a crowd of visitors not exercising care when going among them will scare a days' growth off a thousand ducklings in less time than it takes to write it.

Regularity in feeding should be strictly adhered to at all times. If you carry no timepiece your ducks will apprise you of the time of day.

A corn meal, beef scrap fed Pekin ducks at the age of ten to twelve weeks of age will satisfy the taste of the most fastidious.

They can be forced to weigh from 10 to 12 pounds per pair at this age, and can be raised to marketable age for from 8 to 9 cents per pound, according to the price of grain, in different parts of the country, and the earliest ducklings in February and March bring from 30 to 40 cents per pound in New York.

The popularity of this delicious meat has grown rapidly during the last few years.

Ducklings should be fattened for market at 10 to 12 weeks of age, or before the pin feathers begin to shoot. They should be killed when ready for market by sticking with a sharp knife through roof of the mouth, penetrating the brain; well bled, and immediately scalded and picked.

After picking clean off pin feathers, place in cool water for a few hours. Before packing they should be placed in tubs of ice water to plump and until all animal heat is out. Then tag, weigh and pack in sugar

barrels. Fill the barrel to within six inches of the top; the space left fill with crushed ice.

The feathers are quite an item in paying for the picking and marketing. They bring from 40 to 45 cents per pound.

Ducklings should be shipped with head and feet on, and should never be drawn, except for special customers.

Rockingham Co., N. C.

WALTER P. LAIRD.

PRESERVATION OF EGGS.

In a commercial way, cold storage is the cheapest method of preserving eggs, but for the housekeeper and small poultryman a storage house is impracticable. Some other method of preserving a few dozen eggs is needed, so that when eggs are cheap and plenty in summer, they can be laid down and taken up and used during the winter, when fresh eggs are a luxury. This subject has received considerable attention from Experiment Stations and others interested, and the latest information is given by the Rhode Island report recently issued.

Among the methods employed were the use of water-glass or silicate of soda, table salt, slaked lime and salt brine, vaseline, dried wood ashes, finely ground gypsum, powdered sulphur, brimstone fumes and sulphur, permanganate of potash, salicylic acid and salt brine. In each case fresh eggs were carefully gathered and placed in stone jars, which were kept in a closet where the temperature ranged from 62 to 67 degrees in summer. They were covered with the liquid preservative, where such were used, or packed in dry material, as the case might be. Vaseline was rubbed over the shell with a cloth, while in the brimstone fumes and sulphur experiment, the eggs were subjected to the fumes of burnt brimstone an hour, and then packed in flowers of sulphur.

The eggs were packed for a period of ten and a half months, when they were examined. Those preserved with waterglass or with the lime, water and salt brine, were all good for culinary purposes, but the rest were all spoiled. Further experiments with the waterglass were tried, and it was found that as little as 3 per cent. solution was effective. Either wooden, earthen or glass receptacles will do to hold the eggs, which should be washed clean, laid in carefully, and then covered with the solution of waterglass and water. After a time the waterglass forms a white precipitation upon the shell, which is readily washed off when the eggs are taken out for use.

After being preserved in this for ten and a half months the whites of the eggs were clear, but not so limpid as those of fresh eggs. The yolks appeared normal in color and condition. The air cell was not enlarged. The taste was slightly flat, or at least not perfectly fresh, but they were suitable for culinary use and probably as good as most crate eggs commonly found in market.

In preparing the lime water and salt brine solution, one pound quicklime and one half pound table salt were thoroughly mixed with boiling water. After slaking and settling, the clear solution was drawn off and poured over the eggs. The eggs kept as well in

this as in the waterglass, the whites beat up nicely, but had a slightly salt taste. This method of preserving eggs is somewhat cheaper than the waterglass, which, however, is not very expensive if a 5 per cent. solution is used.—*American Agriculturist*.

SOME TIMELY HINTS.

The sooner you dig out the old earth floors in your hen houses and fill in new, the better condition will the floors be in for winter. It is best to dig out six or eight inches of the old earth so as to remove all the taint and bad odor that may be in the ground. Remove this to some spot of land that needs fertilizing, and bring in some fresh earth to fill in with. A clay soil which will pack closely is best. Pack it in as close and hard as possible. Use a heavy maul or tamper, so as to have a good solid floor. On top of this—when it has had time to dry a little—put six or eight inches of dry loam or sandy soil. This will make the very best kind of a winter floor for your hens, and the sooner it is fixed the drier it will be for winter. Don't forget to clean up the whole interior, including nest boxes and all, when fixing the floors, and do it thoroughly and well.

If the roof leaks, fix it at once. Don't let the wet and damp spoil the whole winter's prospects. Have all leaks and wind holes closed at once, so that the inside of the house will have a good chance to get thoroughly dry while the weather is warm. Keep the windows and doors open for ventilation—just so the rain does not come in. Fix up the dropping boards and the roosts. Have new nest boxes if needed, and put the nests up off of the floor in an out of the way dark place, so that the hens will not be tempted to eat the eggs. Temptation often leads us into trouble. Just so with the hens. If the nests are located with the entrance to them a little way from and out of the line of vision, the "out of sight, out of mind" rule will help to keep them from learning to eat the eggs. While at it, paint the nests, roosts, dropping board, and all places where lice may be, with some good louse paint.

POULTRY KEEPING PROFITABLE.

Professor A. G. Gilbert, of the Ottawa Experimental Farm, in answer to the question, "Why is poultry valuable to the farmer?" gives the following reasons:

1. Because he ought by their means to convert a great deal of the waste of his farm into money in the shape of eggs and chicks for market.

2. Because, with intelligent management, they ought to be all-year revenue producers, with the exception of perhaps two months during the moulting season.

3. Because poultry will yield him a quicker return for the capital invested than any of the other departments of agriculture.

4. Because the manure from the poultry house will make a valuable compost for use in either vegetable garden or orchard. The birds themselves, if allowed to run in plum or apple orchard, will destroy all injurious insect life.

5. Because while cereals and fruits can only be successfully grown in certain sections, poultry can be

raised for table use or layers of eggs in all parts of the country.

6. Because poultry raising is an employment in which the farmer's wife and daughters can engage and leave him free to attend to other departments.

7. Because it will bring him the best results in the shape of new-laid eggs during the winter season, when the farmer has most time on his hands.

8. Because to start poultry raising on the farm requires little or no capital. By good management, poultry can be made, with little cost, a valuable adjunct to the farm.—*Farmers' Advocate, Can.*

ONE CAUSE OF FAILURE IN POULTRY KEEPING.

[Extract from a Lecture by John H. Robinson, of the Connecticut Agricultural College.]

I could give numerous instances where people have deliberately gone contrary to the known teachings of experience, because that experience not being personal to themselves, they could not realize the danger and folly of rejecting its lessons. Had they learned the business first under a competent instructor they would not have been likely to go badly wrong, for the habit of doing a thing right often keeps one out of trouble, even if he does not understand the reasons for the method he uses—and has never seen a practical demonstration of the consequences of doing that particular thing in some wrong way. Some one has said, "Success does not consist in never making mistakes, but in never making the same mistake twice." I don't think that assertion will bear a very close analysis; very few generalizations of the kind will; but it certainly has a great deal of truth in it.

As I look back over the years when I was learning poultry keeping—experience made largely of mistakes—I recall that at the close of each season I used to note, in reviewing that season's work, that my marked progress had been principally along the one or two lines in which I had found most discouragement and loss in the previous season, and to which I had therefore given most thought and attention. And in the next season work on those lines was comparatively easy, had perhaps advanced to the mechanical stage, and more time could be given to some other troublesome matter.

This was progress, and there was a certain satisfaction in working things out for oneself, but it was a slow and laborious progress, and the cost was enormously greater than if I had learned the business in the right way.

There is another way in which poultry keeping is hard for most people—and very hard for some—which few think of until they learn it by experience.

The business is very confining, and so in times becomes monotonous.

Then it becomes a question of whether the poultry keeper can take up some form of recreation that can be adapted to such leisure as he can secure, and furnish relaxation which will break the monotony of his work without interfering with it. If he cannot do this—and if he is of such a disposition that he cannot stand the monotony of the life, he is very apt to begin to cut his duty here and there to get time for favorite

pleasures, and when he does this the finish of his venture is only a question of time.

The poultry keeper—like all who have the care of live stock—has to give the real needs of his stock precedence over all ordinary claims upon his time and attention. The care of the stock will frequently require long days of labor extended far into the night, loss of sleep, and denial of many pleasures.

"Business first" must be his invariable rule, for there is no other line of work in which the penalties of slight infringements of that rule are more sure or more quickly felt. Whoever finds it too hard to follow that rule will fail in poultry keeping.

Limber neck is a complaint common to chickens in the Middle and Southern States. It is caused by ptomaine poisoning from eating putrid flesh. The disease is a paralysis of the neck, and death is not caused by maggots gnawing through the craw, as is commonly supposed. Poultry keepers in England and France feed their birds on maggots, but where maggots are, the poison which causes this trouble is likely to be found. I have found turpentine a good remedy, but probably the most effectual is venetian red, say half a teaspoonful to each bird daily. Mix this with dough and roll into strips one inch long.—W. B. DOAK, Hamblen County, Tenn.

Dampness causes much mortality among chicks which are hatched under hens.

The temperature of the brooder should never be allowed to fall below 90 degrees.

Good stock always finds a ready market, while poor stock is not in demand at any price.

The hen may not be a "mortgage lifter," but given a chance she will scratch one badly.

Never crowd too many fowls into one house or yard. Overcrowded flocks are always failures.

Suitable buildings and proper attention are indispensable to success in the poultry business.

Sunshine is a chicken grower; give the early chicks the benefit of this and face the coops south.

Young chicks should have some kind of green food, and a little ground bone will be good for them.

It is a pretty well established fact that hens will lay more eggs with no rooster about to bother them.

In selecting a breed for practical purposes, the plumage should be a matter of secondary consideration.

Don't defer the afternoon mash too late. Remember the days are short, and the hens go to roost early.

Young ducks do not need a swimming place, but the water fount should be deep enough so that they can immerse their bills above their nostrils.

When setting the hens, or starting the incubators, have all the eggs as near the same age as possible; you will get a more uniform hatch.

Among mixed breeds we occasionally find as good a layer as we do of any stock, but the majority are usually inferior layers.

The Horse.

ONLINE, 2:04, DEAD.

Editor Southern Planter :

After thirty-six hours of sickness, and constantly attended by two of the best veterinary surgeons of our city, we lost our famous pacing stallion and sire, Online, 2:04, on August 16th. Post mortem examination proved that he died of volvulus of the smaller intestine. This, of course, is sure death, and there was not a possible chance to save him. About 20 feet of the intestine was twisted, which is very unusual. We have buried him on our International Stock Food Farm, and he rests on the bank of the beautiful Minnesota river, where a stone will be erected in honor of his greatness.

He is not only a great loss to our farm, but the entire horse-world regret his early death, as he was proving to be a phenomenal sire of fast pacers. Minnesota and the entire Northwest highly appreciated this remarkable World's Champion pacing stallion. He had held the four-year-old stallion pacing record for eight years, and although a young horse he had 17 in the 2:25 list and many more ready to enter.

INTERNATIONAL STOCK FOOD CO.

Minneapolis, Minn.

NOTES.

In charge of the veteran trainer and driver, C. A. Pusey, at the mile track of the Deep Run Hunt Club, about a dozen trotters and pacers are quartered, most of whom are owned by members of the Club. Those with records are the big bay gelding Rustler, 2:15½, by Hustler Russell, who trotted to his record in 1902, and is being shaped up for the races again, and the bay pacing mare Steed, 2:22½, by Marvellous, whose owner, Mr. Langhorne Putney, has been driving on the road. She can show a mile under 2:15, and reel of quarters at a 2:10 clip handily. Thiol, the bay mare, by Egwood, 2:18½, dam by Woodburn Hambletonian, is owned by John K. Branch, of the banking house of Thomas Branch & Co., by whom she was bred. If this erratic daughter of Egwood ever becomes steady she should make a great matinee performer for Mr. Branch, as he can drive with the skill of a professional, and Thiol has a wonderful turn of speed. Ephraim is a bay gelding, 4, by Toodles, Jr., dam by Willis, and could trot better than 2:30 as a two year old. Wharton is also a bay gelding, but a year younger than Ephraim, and by Gregorian, out of Gretna Green, dam of J. S., 2:24½, by Aberdeen. The chestnut stallion Estuary is a full brother to Marique, 2:14½, and a horse of the richest breeding, being by Expedition, 2:15½, out of the great brood mare Wavelet, by Belmont, second dam far famed Waterwitch. He is five years old, and has worked miles around 2:20 and halves and quarters at a much faster clip this season. Pusey likes him well. Surprise is a nice looking bay gelding,

whose breeding has not yet been given Pusey, but the horse is very fast, and when right 2:15 will not stop him. Leveret, the bay gelding, by A. L. Kempland; out of Laurel B., dam of Laurels, 2:13½, has gotten big and strong, while steady in company and able to show a half in 1:07 without much effort. He is owned by Mr. W. H. Miles, and later on may be taken to the races along with Rustler and Lizzie S. The latter is a nice looking bay mare with good manners and a level head. Mr. Thomas Atkinson owns her. She is entered at several of the Baltimore meetings and seems good enough to win start.

The annual show of the Rockingham Horse and Colt Show Association took place at Harrisonburg, Va., on the 13th and 14th instants and was a decided success, the attendance being larger and the exhibits of a higher character than during previous years. Held at Lake Park, the new and beautiful grounds of the Association, which are right near town, and in the midst of an attractive and prosperous farming locality, the show attracted thousands each day, especially on the second one, when the grand stand was packed and the crowd in general larger than was ever seen even at the old fashioned fairs that in their day were all the rage. Perfect weather conditions prevailed and no two men on the grounds were in higher feather over the condition of affairs than President J. S. Harnsberger and Dr. John A. Myers, who combines the duties of secretary and treasurer. E. W. Twaddell, of Philadelphia; J. B. Andrews, W. W. Sanford and W. J. Carter judged the show horses, and likewise rendered decisions, when a couple of running and harness races were run off during each afternoon. The latter was a popular feature and well received by the masses. That the Horse Show is an educator was clearly demonstrated by the fact that breeders of the Valley of Virginia are fast becoming alive to present day demands for high-bred horses, and many of the specimens of youngsters exhibited may be looked upon as grand prospects for future honors on the turf and in the show ring. During former years mostly cattle and draft horses were bred in this section, but now trotters, thoroughbreds, hackneys, hunters, jumpers and gaited saddle horses come in for a large share of attention, and in the near future their production for the big markets promises to become a most important feature of the far famed Shenandoah Valley.

An ailing leg has at least caused retirement during the present season of Gold Bur, the son of Bursar, 2:17, that was bred by W. C. West, Onancock, Va. The handsome chestnut gelding has been a consistent performer right along since his first race in June, and at Albany on July 31st got second money in the Keeler Hotel Stakes and a new record of 2:13½, a reduction of ¾ seconds from his former mark. At Poughkeepsie, on the 7th instant, Gold Bur won a couple of heats in the 2:17 class, trotting, and then his leg caused trouble and the chestnut gelding caught the flag. Gold Bur is one of the best looking trotters ever sent out from Virginia, and well bred too, as his sire, the dead Bursar, has gotten speed, and the dam, Bertie, pro-

duced Lamp Girl, 2:09, the fastest of Virginia bred trotters.

The McComb Brothers—James and John—of the Glencove Farm, a fine estate of over 400 acres, near Somerset, Orange county, Va., report a good season in the way of sales made of hunters, jumpers and gaited saddle horses. Lady Golden, the chestnut mare, by Golden Denmark, went to New York; Lady May, the brown mare, by Fessler, was purchased by a gentleman in Brooklyn, while the two heavy weights, Skyrocket, a bay gelding, 16:1, 1100 pounds, and Franklin, a black gelding, 16, 1150 pounds, also went North and have given great satisfaction to their new owners. The stallions in use at Glencove are Golden Denmark, the saddle bred stallion, who is highly prized, and Abdel Kader, Jr., by Abdel Kader, the thoroughbred son of Imp. Australian, that for years ruled as premier sire at famous Bullfield Farm, in Hanover county. Abdel Kader, Jr., is not strictly thoroughbred, but is a horse of exquisite quality and finish, and his get make fine hunters and steeple chase horses. The finest three year old at the farm, and one good enough to show in any company is Lightfoot, the black gelding that has won either first or second prizes all along the line of Virginia horse shows this season. Lightfoot was sired by Fessler, dam by Castleman, son of Woodford Mambrino.

Mr. J. S. Curtis, of the Mayfield Stud, Leesburg, Va., has five entries in the English Derby of 1903. Mr. Curtis, who is widely known as the "South African Millionaire," maintains a racing stable in England. The Mayfield Stud at one time assumed large proportions, but in 1901 the greater portion of the brood mares were disposed of along with several of the stallions, and the sires now in use are imported Mince meat, son of St. Augustine and Outlet, by Nun-cham, and imported Benvenute, by Galopin, out of Queen of Diamonds, by King of Trumps.

One of the most highly-prized brood mares in the noted Eilerslie Stud of R. J. Hancock & Son, Charlottesville, Va., is Mermaid, the chestnut daughter of imported St. Blaise and Palmetto, by Virgil. By Eolus she produced Merry Day, the chestnut horse with lightning speed and many victories to his credit, now a member of the Annita Stud of A. D. Payne, Charlottesville, while by Eon, son of Eolus, she threw Eonic, winner of the rich Burns Handicap in California this season. Minetauer, bay colt, 2, full brother to Eonic, won at Brighton Beach recently. Mermaid's foal of 1902 is chestnut filly, full sister to Eonic.

The brown mare Princess of Ridgefield, by Prince Belmont, dam Ida Wise, by Bijardo, second dam by Walker Morrill, the sire of Lamp Girl, 2:09, was sent by her owner, Dr. J. C. Walton, Reidsville, N. C., to the court of Lynne Bel, 2:10½, this season, at Flemington, N. J. By that great young sire of speed, Princess of Ridgefield, who is a large, handsome mare, should throw a choice foal. Lynne Bel figures as the sire of this season's winner, General Johnson, Meadow Bel and other good ones.

Among the trotters owned by F. C. Smith, of Staunton, Va., are the roan mare Marion Shaw, full sister to Annie S. Lawson, 2:20, by Prince Orloff, son of Messenger Duroc, and Walton Wonder, the chestnut colt, foaled November 17, 1901, by Red Leo, 2:26½, out of Perrette, 2:23½, by Juror, 2:24½. Walton Wonder was bred at Walton farm, Falls Mills, Va., where his sire heads the stud, and the dam Perrette is a member of the brood mare band.

Richmond is the Mecca to which the cohorts will look during the week of October 14th to 18th, which are the dates of our Horse Show, and it promises to be a grand affair. The new auditorium at Reservoir Park will surpass any building of the kind in the South, while facilities for handling large crowds are excellent, as three car street lines centre there. Already every box seat has been engaged and applications are being daily received for season tickets. The entry list promises to be large and of a select character, which encourages the management to look forward to a most successful result.

In the brown filly Brilliant, one year old, by Arnon, thoroughbred son of imported Charaxus and Wayward, by Eolus, Mrs. Allen Potts has a youngster of rare form and finish. The exquisite quality of this filly has been a subject of remark, and wherever exhibited she has carried off the blue ribbon. Brilliant was bred at Castle Hall, Cobham, Va., where her sire and dam are owned, the latter being by a Revenue horse from an imported hackney mare.

W. W. Sanford, of the Woodley farm, Madison Run, Orange county, Va., has lost by death, due to a broken ankle which necessitated his being destroyed, the grand looking thoroughbred stallion Lachland, brown horse, by Spendthrift, out of imported Landrino, dam of Mexican, by The Arrow. This horse was purchased early in the season from J. W. Colt, Genesee, N. Y., and placed in the stud with a view of siring hunters, jumpers and steeplechase horses, for which his fine size and conformation seemingly made him well fitted.

At the Charlottesville Horse Show the first prize in the class for harness stallions went to the chestnut horse Aebineer, 30,992, bred and owned by Mr. William N. Wilmer, of the Plain Dealing Stud, Keene, Albemarle county, Va. Aebineer was sired by Virginia Chief, son of Kentucky Prince, out of Aebina, by Alban, second dam Violet, dam of Version, 2:19½, and Bonnie E., 2:29½, by Electioneer, 125.

In the bay horse Iron Crown, thoroughbred son of Onondaga and Empress, by imported Emperor, A. S. Craven, of the Greenwood Stud, Greenwood, Va., has a stallion that promises to make an excellent sire of hunters, jumpers and steeplechase horses. Iron Crown stands 16:1 and weighs 1,100 pounds.

BROADROCK.

When corresponding with advertisers, say that you saw the advertisement in the *Southern Planter*.

Miscellaneous.

CEMENT FLOORS FOR STABLES AND BARNES.

In our notes on Work for the Month, we have suggested that this is a very proper time to see to the repairs and renovation of the barns and stables. In connection with this work there is one improvement which we should like to see much more frequently than we do—viz.: the introduction of cement floors into stables and barns. The use of these floors enables all the liquid manure to be saved, and this is the most valuable part of the voidings of the stock, and they also result in the making of much more manure and that of a much more valuable character. Another argument in their favor is that they are of permanent value. Once put down they practically last forever. The work of laying such a floor can easily be done by any man of intelligence almost as well as by an expert, and this materially reduces the cost. The cement required is the only item of cost on most farms, and this is not anything like so costly as many imagine. Here in Richmond the price of Portland cement is \$2.10 per barrel. A barrel of cement will make the concrete and give the finishing coat to one hundred square feet of floor in a cow house or hog pen. This allows for three inches of concrete and a half inch of finished surface. In a horse stable or where heavy traffic is to be hauled over it, the concrete should be five inches deep and the surfacing one inch. This would call for nearly two barrels of cement to the one hundred feet. The process of preparing for the floor and mixing and laying the cement is simple. Level the floor space by taking out sufficient soil to allow for filling in four to six inches of gravel or broken stone, and on top of this the three to five inches of concrete. This will bring your floor to its present level. In laying out the floor, if you desire the drainage to run towards any particular point for convenience of removal by drain or otherwise, see that you provide the necessary fall to this point. When the place is ready for the foundation, fill this in and tamp solid and level. Then take broken or crushed stone, no piece larger than an inch in diameter, use eight parts of this crushed stone and four parts of fine clean gravel from which you have screened the sand for mixing your finishing coat or topping, using a screen with quarter-inch meshes, and one part of cement. The mixing must be thorough. Build up a conical heap containing anywhere from twenty-five to fifty cubic feet, measuring the gravel, sand and cement and pouring them on alternately; then shovel it over four times, mixing it thoroughly, or perhaps a better way is for one man to use a shovel and another a fine-toothed rake, and as each shovelful is thrown on the

heap pass the rake back and forth on it. This mixing should be done dry. When thoroughly mixed shovel it over another time, having some one with a watering pot sprinkle as you do so. It should not be wet enough to drip, but should be thoroughly dampened so that the cement will adhere to every pebble or bit of stone in it. When thoroughly mixed and moistened throughout, lay the concrete on the foundation to the depth required and tamp solid and level. Then after this has dried a few hours, mix the finishing coat made of the fine sand sifted out of the stone, and cement in the proportions of nearly half and half to the consistency of mortar and spread over the concrete, leveling it with a straight edge. If desired, this surfacing may be ridged or roughened by marking it off in square or in parallel lines. This prevents stock slipping on the floor. In forty eight hours the floor will be hard enough to use, but will be better to wait longer.

AGRICULTURAL STATISTICS OF VIRGINIA AND NORTH CAROLINA.

We are just in receipt of the census office reports on the agricultural situation in Virginia and North Carolina as prepared for the 12th census of the United States. From these reports we take the following information :

VIRGINIA.

The farms of Virginia, June 1, 1900, numbered 167,886, and were valued at \$271,578,200. Of this amount \$70,963,120, or 26.1 per cent., represents the value of buildings, and \$200,615,080, or 73.9 per cent., the value of land and improvements other than buildings. On the same date the value of farm implements and machinery was \$9,911,040, and of live stock, \$42,026,737. These values, added to that of farms, give \$323,515,977, the "total value of farm property."

The products derived from domestic animals, poultry, and bees, including animals sold and animals slaughtered on farms, are referred to in this bulletin as "animal products." The total value of all such products, together with the value of all crops, is termed "total value of farm products." This value for 1899 was \$86,548,545, of which amount \$27,846,803, or 32.2 per cent., represents the value of animal products, and \$58,701,742, or 67.8 per cent., the value of crops, including forest products cut or produced on farms. The "total value of farm products" for 1899 exceeds that for 1889 by \$44,304,087, or 104.9 per cent.

The "gross farm income" is obtained by deducting from the total value of farm products the value of the products fed to live stock on the farms of the producers. In 1899 the reported value of products fed was \$13,002,810, leaving \$73,545,735 as the gross farm in-

come for that year. The ratio which this amount bears to the "total value of farm property" is referred to in this bulletin as the "percentage of gross income upon investment." For Virginia, in 1899, it was 22.7 per cent.

As no reports of expenditures for taxes, interest, insurance, feed for stock, and similar items have been obtained by any census, no statement of net farm income can be given.

NORTH CAROLINA.

The farms of North Carolina, June 1, 1900, numbered 224,637, and had a value of \$194,655,920. Of this amount \$52,700,080, or 27.1 per cent., represents the value of buildings, and \$141,955,840, or 72.9 per cent., the value of land and improvements other than buildings. On the same date the value of farm implements and machinery was \$9,072,600, and that of live stock, \$30,106,173. These values, added to that of farms, give \$233,834,693, the "total value of farm property."

The products derived from domestic animals, poultry and bees, including animals sold and animals slaughtered on the farms, are referred to in this bulletin as "animal products." The total value of all such products, together with the value of all crops, is termed "total value of farm products." This value for 1899 was \$89,309,638, of which amount \$20,684,727, or 23.2 per cent., represents the value of animal products, and \$68,624,911, or 76.8 per cent., the value of crops, including forest products cut or produced on farms. The "total value of farm products" for 1899 exceeds that reported for 1889 by \$39,239,108, or 78.4 per cent.

The value of "net farm products," or the "gross farm income," is obtained by deducting from the total value of farm products the value of the products fed to live stock on the farms of the producers. In 1899, the reported value of products fed was \$10,108,890, leaving \$79,200,748 as the gross farm income for that year. The ratio which this latter amount bears to the "total value of farm property" is referred to as the "percentage of gross income upon investment." For North Carolina in 1899, it was 33.9 per cent.

As no reports of expenditures for taxes, interest, insurance, feed for stock, and similar items have been obtained by any census, no statement of net farm income can be given.

From these reports it will be seen that the gross return on investments made in farm property in Virginia amounts to 22 per cent., and in North Carolina to 33 per cent. These returns compare very favorably with the gross returns made on investments in like property in Northern and Western States. In New York, the gross return is 17 per cent.; in Pennsylvania, 14 per cent.; in Illinois, 13 per cent.; in Indiana, 15 per cent. The total area of Virginia farms is 19,907,805 acres, of which 10,094,805 are improved. The total area of North Carolina farms is 22,749,356 acres, of which only 8,327,106 are improved. The total amount paid for labor on Virginia farms in 1899 was \$7,790,720, and on North Carolina farms, \$5,185,167. The amount paid for fertilizers in Virginia in 1899, was \$3,681,790, and in North Carolina, \$4,479,030.

VIRGINIA AS A HOME FOR THE FARMER.

Editor Southern Planter:

I am a new resident of the State, coming from Ohio. Whilst in Ohio recently on a visit, I was asked by many why I ever came to Virginia. I could only say that I thought there were good opportunities in Virginia for a man with small means.

Since my return home I have received a copy of the Year-Book of the Department of Agriculture, and I find upon a little investigation that Virginia is second to no State in value of product raised per acre. Iowa the Year-Book shows was the banner State for hay in 1900, producing 5,006,470 tons. The average value of the hay produced was for ten years \$7.15 per acre. Virginia, in 1900, produced 507,873 tons, with an average value for ten years of \$12.00 per acre.

Iowa was also the banner corn State in 1900, producing 350,859,948 bushels, with an average value for ten years of \$5.87 of corn per acre. Virginia in 1900 produced 28,183,760 bushels, with an average value per acre for ten years of \$7.93.

Illinois was the banner oats State for 1900, with a crop of 133,642,884 bushels, with an average value per acre for ten years of \$7.39. Virginia produced in 1900 5,167,568 bushels, with an average value of \$4.76 per acre for ten years.

Kansas was the banner wheat State in 1900, with a crop of 82,488,655 bushels, with an average value per acre for ten years of \$7.26. Virginia produced 9,421,932 bushels in the same year, with an average value per acre for ten years of \$7.68.

New York was the banner potato State in 1900, carrying off the position with a crop of 27,481,356 bushels of the tubers, with an average value for ten years of \$34.81 per acre. Virginia produced the same year 2,223,778 bushels, with an average value per acre for ten years of \$36.26.

New York was the banner buckwheat State in the year 1900, producing 3,280,158 bushels, with an average value for ten years of \$8.26 per acre. Virginia in 1900 produced only 58,812 bushels, with an average value for ten years of \$7.18 per acre.

The land upon which the Iowa farmer raised his hay and corn is to-day worth from \$40 to \$60 per acre. Land that will produce an average crop of hay and corn in Virginia can be bought for from \$5 to \$15 per acre, and yet an acre of hay in Virginia for the past ten years has been worth \$4.88 more in Virginia than in Iowa.

The Iowa farmer gets from his \$40 to \$60 land but \$5.87 worth of corn per acre, on a ten years' average, with the best of culture. Virginia, with the poorest system of culture in the world for corn, raises \$2.06 worth of corn more to the acre than Iowa on a ten years' average.

In the State of Illinois an acre of land that will produce an average crop will cost from \$50 to \$60, and yet the Illinois farmer on a ten years' average can only produce \$2.63, more oats to an acre than Virginia. If one half of the Virginia farmers would only work a tobacco stubble, and scatter on it about three pecks of oats to the acre, and cover with a brush, as is quite frequently done in Virginia, they would produce more oats than the Illinois farmer.

Kansas, with her broad acres of grain, her sulky plows, self binders, and land worth \$30 to \$50 per acre, just falls short 48 cents per acre of producing as much wheat to the acre as Old Virginia.

New York, where land sells at any and all prices, but where land that will produce an average crop of anything is worth from \$40 to \$100 or more per acre, just falls short of producing as much value in potatoes to the acre as Virginia by \$1.39 on ten years' average. She beats us on buckwheat \$1.08 per acre for a ten years' average, but look at the difference in the value of the land. Did Virginia farmers but work and manure her land as the farmers of Iowa do their corn land or make her hay as they do in Iowa, or the farmers of Illinois or the farmers of Kansas their wheat, or the farmers of New York their potatoes, she would stand at the head of all these States in production and value.

Charlotte Co., Va.

J. H. HARPSTED.

THE LABOR SITUATION IN GERMANY.

Editor Southern Planter:

Accounts of the prevailing condition of the working classes in Germany that I have seen in recent American newspapers are, as far as my observation goes, considerably exaggerated. They seem to have been taken mostly from German party organs that are either misinformed or that misrepresent the situation to further political objects. During the past winter many workmen were, it is true, out of employment as a result of a commercial crisis, and there was consequently a good deal of suffering, which public appropriations and private charity only partially relieved, but with the opening of spring there was a marked change for the better. The reports of the labor bureaus and of the state sick, accident and old age insurance department, which are entirely trustworthy, indicate that there is now work at what are here called fair wages for all who seek it. Sixty thousand Italians who have come into this country in the past few months are all busy on the railroads and in the building trades, and in many agricultural districts there is the usual very perceptible want of farm hands. In Central and Southern Germany, where the small farms

are tilled in a patriarchal way by the owners and their families, this want is scarcely felt; but with the large landowners of the North it is of such a serious character that it has to be supplied by the importation of laborers, chiefly from Russia and the Austrian Empire. Every year, in March, thousands of men, women and half-grown children are brought in and located on the big estates, mostly in the northeast provinces of Prussia, where they are allowed to remain until November, but must then leave German territory as the government refuses them the right of domicile. The intelligence office, in connection with the Board of Agriculture of the Province of Rosen, announces that it can furnish "foreign summer help" at the following rates:

Russians.—Men, daily wages, M*. 1.50; women and boys, M. 1.00. Men, in harvest, wages, M. 1.75; women and boys, in harvest, M. 1.25; with 25 lbs. of potatoes per person per week and one-half liter† of skimmed milk daily; cost of transportation per person to the Prussian border, M. 2.00; in groups of more than 10, M. 1.50.

Galicians.—Men, monthly wages up to, M. 20; strong boys, monthly wages up to, M. 18; weak boys and women, monthly wages up to, M. 16; with farm produce to the value of 40 pf. per person per day; cost of transportation per person to the Prussian border, M. 5.

Hungarians.—with guarantee against breach of contract, in groups of not under 20 persons: Men, daily wages, 85 pf.; women, 68 pf.; men, in harvest, wages, M. 1.36; women, M. 1.02; with farm produce to the value of 40 pf. per person daily; cost of transportation to the Prussian border per person, M. 7.

The lodgings provided for them are for the most part far from being comfortable, but they are better than the poor creatures are used to at home.

The young men from the rural districts in Germany, after serving their two or three years in the army, do not generally return to farm work, but go to the cities and industrial centres, where they are much better paid, housed and fed. They seem, too, to dread the monotony and dreariness of country life. On the whole, though, the standard of living among farm laborers in Germany is, I think, gradually rising.

SAM'L ROLFE MILLAR.

Singen-Baden, Germany.

* 1 Mark of 100 pfennig=24 cents (about.) † 1 Liter=1 quart and ½ gill.

Farmers can often save next year's repair bills by housing all machinery and implements when this season's work is over. Don't forget to use the oil can first though.

ALFALFA.

In introducing this crop in our agriculture there are a few things that ought to be considered by the farmers. In the first place alfalfa is a crop which when seeded must remain for several years at least before plowing up for corn or other crops. It takes almost two and sometimes three years to get a stand. After once securing a stand, with no unfavorable conditions of soil and climate, the value of the crop will increase from year to year. As the roots increase in length and size the crown develops more buds, until a single root will support a large number of stems. One plant hanging in my office was pulled out of a three year old field and has fifteen stems. Further than this we have found it very difficult to plow up an alfalfa field, the roots dulling the plow so that it was necessary to sharpen the share frequently. All things considered, then, the farmer should carefully locate the alfalfa field where it can remain permanently or for many years at any rate. It does not seem to fit in with our crop rotation, where a short round of corn with a leguminous crop is desirable.

Alfalfa is a leguminous crop and it is believed that its growth adds to the fertility of the soil, besides putting it in good mechanical condition. The root tubercles take the free nitrogen from the atmosphere adding this valuable element of plant food to the soil where other crops may use it. The roots penetrating the subsoil break up the hard clay soils, allowing the air to circulate, making the insoluble plant food in the sub-surface and subsoil available for grain crops. At the same time the growth of the plants is very rapid, making it necessary to cut three and even four times in a single season. On several Illinois alfalfa fields over three years old four crops were harvested last year. The crop should be cut when about one tenth of the plants are in bloom. Professor H. M. Cottrell, of Kansas, who has gone more deeply into this subject than any other experimenter, says that by allowing the crop to ripen the plants will die and the stand be injured so much that the field will rapidly become unprofitable. He states that in fields which have become patchy the disc run over the field in the early spring, the discs set straight so as not to plow up the ground, but so as to split open the alfalfa crowns, will increase the number of plants, and consequently revive an otherwise dying crop. In a recent visit to an alfalfa field within two miles of the Illinois Experiment Station Prof. Cottrell stated that cutting early was the most important point connected with the successful growing of the crop.

It is thought that sandy soils with gravelly subsoils in which the water level does not come nearer than eight or ten feet of the surface is best adapted to this crop. The facts are that no general rule, no definite directions can be given whereby the farmer can tell whether alfalfa will be successful on his farm or not. The only way to find out is to try it. In experimenting it is a good plan to try it on a small scale, perhaps a field of an acre or five acres. If the crop proves to be a success it can be easily extended; if a failure there will be a correspondingly small loss. It is only fair to sow the crop on good soil. The seed resembles that of clover very much and is very small, consequently the young plants are delicate and easily killed. Therefore, in order to get the small plants

established it is necessary to have a rich surface soil properly prepared.—A. D. SHAMEL, *Ill. Exp't Station, in Breeders' Gazette.*

AIR-CURING TOBACCO.

If you have any information as to curing tobacco without smoke we would be glad if you let it appear, if you can, in your next issue. The time for curing is rapidly approaching, and I am satisfied that there is a good percentage of our tobacco more valuable without smoke than with it.

Prince Edward Co., Va.

C. S.

Tobacco curing without artificial heat, either from open fires or flues, requires well ventilated barns with doors or openings through which the flow of air can be regulated. The tobacco after being cut is usually hung on scaffolds in the field to wilt and color for a few days. It is then taken to the barns and hung up four or five plants on a stick, sufficiently apart to admit of the circulation of the air through the whole of the plants. In this way it gradually cures until fit to take down and bulk. The secret of success in this method of curing is careful supervision of the ventilation of the barn, so as to keep up a constant change of air until the curing is completed.

HOW TO CURE THE NEW CROP OF TOBACCO

L. B. Vaughan & Co., the well-known tobacco commission firm of this city, give the following advice to tobacco growers:

For such tobacco as Orinoco we advise sun and air cure of red color free from fire or smoke smell. For shipping or strips, when White Stem, Pryor, or One Sucker has been raised, we advise brown or dark red.

In all cases, as far as possible, avoid smoke or fire smell, and where flues or stoves are used, if possible, use charcoal. There can be but one opinion, and that is, that the world's taste is turning to milder tobacco without smoke. During curing of air or sun-cured tobacco, wet, damp, hot spells will cause such tobacco to mould. To avoid this, air-tight wood stoves should be used to give heat, mostly to cause circulation.

AN UNEVEN APPLE CROP.

Special data secured from orchardists, dealers and handlers, supplementing the regular returns of our own corps of observers, confirm American Agriculturist's previous reports of only a moderate apple crop of indifferent quality in the western centres of production, while here in the east condition irregular. During July the prospect was distinctly lowered in practically every apple producing district between the Alleghany and the Rocky mountains.

Too much rain, too little sunshine, and a continued dropping of fruit is the constant burden of western reports, and the crop may now be classed as ranging from complete failure up to a moderate yield, a full crop nowhere, and an average promise from only one State—Michigan.

THE
Southern Planter

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B. MORGAN SHEPHERD,
BUSINESS MANAGER.

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Rate card furnished on application.

TERMS OF SUBSCRIPTION.

The Southern Planter is mailed to subscribers in the United States and Canada at 50c. per annum; all foreign countries and the City of Richmond, 75c.

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Subscribers failing to receive their paper promptly and regularly, will confer a favor by reporting the fact at once.

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We invite Farmers to write us on any agricultural topic. We are always pleased to receive practical articles. Criticism of Articles, Suggestions How to Improve THE PLANTER, Descriptions of New Grains, Roots, or Vegetables not generally known, Particulars of Experiments Tried, or Improved Methods of Cultivation are each and all welcome. Contributions sent us must not be furnished other papers until after they have appeared in our columns. Rejected matter will be returned on receipt of postage.

No anonymous communications or enquiries will receive attention.

Address— THE SOUTHERN PLANTER,
RICHMOND, VA.

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A Neat BINDER for your back numbers can be had for 25 cents. Address the Business Office.

PUBLISHER'S NOTES.

Winter Reading Matter.

The long evenings are now commencing, and occupation for them should be provided. The best use to make of them is to arrange for a systematic course of reading on various agricultural questions of moment to the farmer. In each section of the State there will be some subject of primary importance. Look up or enquire for the best authorities on the question, and order the book or books to be sent you. We shall be glad to advise farmers on these questions and to supply the books at the lowest possible price—much less when taken in conjunction with THE PLANTER—than they can be bought for elsewhere. See to it that your subscription to THE PLANTER is promptly renewed, and if not already a subscriber, send in your name and address, and that of two or three of your neighbors, and we will send the journal to you and them at a reduced price. For 50c. we will send you THE PLANTER to the end of the year 1903. Each issue will be found of the utmost interest and value to every farmer in the South. If your subscription expires at the end of the year, or in January, send in your renewal now, so that it can receive attention when we are not so overwhelmed with business as in midwinter. We have many thousand subscriptions expiring in December and January, and the work of handling them all at that time cannot be got through without delay, and the new subscriptions sent in at that time are so numerous that mistakes are unavoidable and delay unpreventable. Subscribe now, and avoid this.

Binders for the Planter.

We have received a new supply of binders for the Planter, and shall be glad to send one holding the numbers for a year to any one sending us 25 cents in stamps or coin.

WOOD'S "TRADE MARK"

FARM SEEDS

are the best that can be obtained—free from weed seeds and impurities and of strong germinating qualities. It is very important if you desire to secure good stands and good crops to purchase the highest grade Seeds obtainable. This you can always do by purchasing Wood's "Trade Mark Brand" of Farm Seeds.

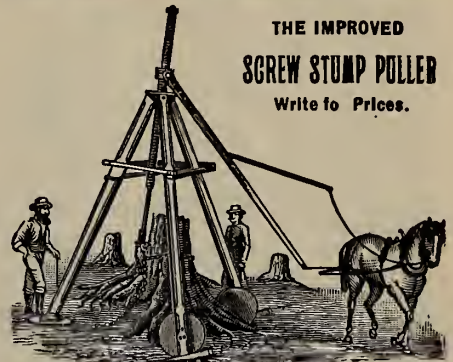
Wood's Fall Catalogue tells all about Vegetable and Farm Seeds for Fall Planting, Seed Wheat, Oats, Rye, Barley, Vetches, Grass and Clover Seeds, etc.

Write for Fall Catalogue and prices of any Seeds desired.

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THE KEMP MANURE SPREADER.

During much of the time that commercial fertilizers have been gaining their foothold in recent years, farmers have read of their relative values and experimented to a large extent unmindful of the land energy lying neglected in the manure pile in their own yards. With the perfecting of machinery for the mechanical spreading of manure, an awakening has come about as to the real wealth of the fertilizer the farmer has in his own possession. Not only has he been caused to put a higher estimate on the value of the manure pile, but he has imbibed the idea that it may be made to cover a far greater area than formerly, distributing its wealth more generously without corresponding deprivation to any part.

Much of this increased estimate on the manure pile has resulted because of the Kemp Manure Spreader being abroad in the land. It has been a forcible and practical teacher. When one of these machines is taken into a new community it makes it quickly apparent to progressive farmers that they must avail themselves of this most valuable implement to retrieve the losses they have unintentionally and perhaps unknowingly been suffering. They see as never before a great saving of time in the spreading of manure. They see the work systematically done with less labor. They are able to appreciate the fact that when the manure is all torn apart and uniformly distributed the hungry soil is able to appropriate every part of the nourishment and the benefits be widely extended. The story is retold with emphasis in the growing crop. The result is that after the advent of the first Kemp into a community numerous others quickly follow. The Kemp Manure Spreader made by the Kemp & Burpee Mfg. Co., of Syracuse, N. Y., is claimed by many people to be the typical machine manufactured for this purpose. It spreads any kind of fertilizer as well as manure, and no matter what its condition, whether lumpy, strawy, coarse or wet, it is perfectly at home in its work, tearing apart pulverizing and distributing finely and evenly over the ground. If this mention even suggests a purchase, it will have served a good purpose to any one who has manure to spread. Mechanical distribution

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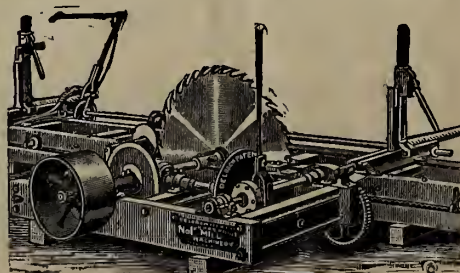
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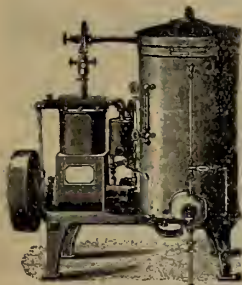
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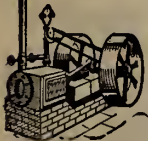


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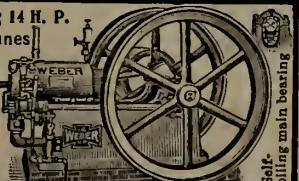
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THE MONEY MAKERS.

The old adage says that "you cannot eat your cake and have it too," but modern science has proved the fallacy of the saying. The modern farmer can procure machines that will enable him to turn his corn into beef and still have the corn left to sell. Machines that will enable the farmer to be absolutely independent regardless of the hay crop.

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The Deering Ideal Corn Binder, the Deering Corn Shocker and the Deering Huskers and Shredders are made in the largest harvester works in the world and contain every modern and up-to-date improvement.

The juice of any acid fruit can be made into syrup by adding a pound of white sugar to every pint of juice and boiling ten minutes. Seal in pint cans.

An excellent filter can be made from a common flower pot. Close the opening with a sponge, then put in an inch thick layer of powdered charcoal, an inch layer of silver sand, two inches of gravel and small stones.

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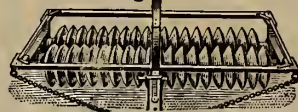
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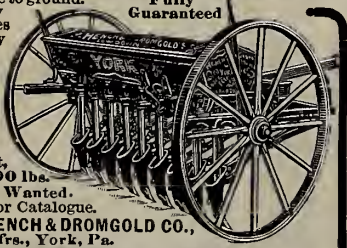
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THE TROUBLE ABOUT ZINC.

It is surprising how much ignorance is scattered promiscuously about, even among people supposed to be experts. As a matter of fact, the average painter, though he knows all that is necessary to know about painting, knows pitifully little about paints, and the most celebrated architects are but little better informed. The first trouble about zinc paints, therefore, is the ignorance of professional paint users.

The second difficulty is that they will not utilize the knowledge they have. It is fatal to any paint, but especially to a zinc paint, to apply it to a moist or even an imperfectly dried surface, yet painting is done in all weathers, and the paint blamed for the consequences. Again, each coat ought to be what the painters call "bone dry" before the next is applied, yet we see three coats applied in a single week by professional painters. To accomplish this feat of celerity the very life is burned out of the paint by strong dryers.

The third trouble with zinc is that it is not so slippery under the brush as lead, and journeyman painters, not liking hard work, thin it until there is more liquid than paint on the surface.

These are the reasons why an ordinary farm hand, ignorant of the turpentine tank and unacquainted with the benzine can, working at his leisure and putting on "the next coat" when he finds time, will frequently surpass in the serviceability of results more than the accredited adept; yes, with the poorest zinc combination obtainable in ready mixed paints will surpass the best results of the latter with his favorite brand of strictly pure lead.

STANTON DUDLEY.

You ought to have a little good whiskey in the house. For accidents, fainting spells, exhaustion, and other emergency uses, it relieves and revives. But you must have good whiskey, pure whiskey, for poor whiskey, adulterated whiskey, is injurious. *Hayner Whiskey* is just what you need, for it goes direct from the distillery to you, with all its original strength, richness and flavor, carries a *United States Registered Distiller's Guarantee of Purity and Age*, and saves you the enormous profit of the dealers. Read the offer of The Hayner Distilling Company elsewhere in this journal. They are a reputable house, have a paid-up capital of half a million dollars, been in business over thirty-six years, and will do exactly as they say.

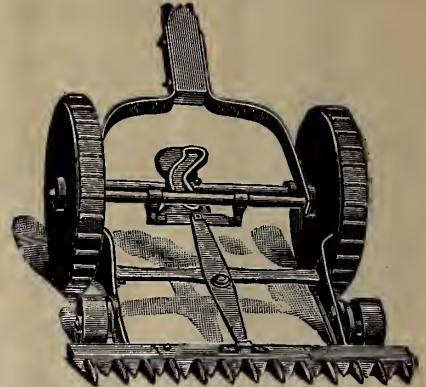
NEW MIDWAY, Md., Aug. 8, 1902.

Editor *Southern Planter* :

I wish to state that my advertisement in the *Southern Planter* has sold my entire flock of Dorsets. I also sold ram lambs in Virginia and North Carolina. My entire flock of prize Dorsets went to Messrs. Dickerson and McClure, of Augusta county. It included in part the champion pair of aged ewes in England and America; also the imported ram "Locust Grove," a great prize winner in England and America. The most of these sheep were imported from England. I disposed of them in order to make room for a new importation. Yours truly, N. S. BURRIER.

THE MOWER

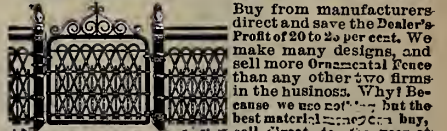
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If you keep the weeds cut so they do not go to seed, and cut your grass without breaking the small feeders of roots, the grass will become thick and weeds will disappear. **THE CLIPPER WILL DO IT.** Send for catalogue and prices.

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Heavy lateral wires, heavy hard steel stays, coiled spring wire, Sure Grip lock. In strength, appearance, and durability, the Hard Steel cannot be excelled. Write for catalogue and prices. **THE HARD STEEL WIRE FENCE CO.**
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other fence, if you believe THE PAGE is best? **PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.**



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HAWKEYE STUMP MACHINE, A COTTON GIN and a 300-EGG MONARCH INCUBATOR.
W. E. THOMAS, Nassawadox, Va.

MAGAZINES.

Following upon the "human documents" concerning the West Indian eruptions which were printed in The Century for August, the September number presents the results of the scientific investigations made by Professors Robert T. Hill and Israel C. Russell, who, it will be remembered, were on the Dixie relief expedition which visited the islands in the latter part of May. The personal impressions and conclusions of these geologists are supplemented by maps and a large number of photographs taken by themselves and others.

It is a far cry from Martinique to the scene of Mr. James D. Hague's article, which is the leading one in the number and is entitled "Our Equatorial Islands." It is largely occupied with the Guano Islands in the Pacific which once belonged to the United States, and the ownership of some of which seems still to be in dispute with Great Britain, chiefly Jarvis and Baker's. Mr. Hague writes from personal knowledge of these islands, and his article has a number of curious features, such as the method of mooring the ships, sending letters by kite line, and the ways of catching the tropic birds. The paper is illustrated in a novel way, chiefly with pictures of these birds, by C. L. Bull.

The leading artistic feature is Mr. Cole's wood engraving in the Old Spanish Masters series, the subject chosen being the central portion of the famous picture, "The Lances," or "The Surrender of Breda," by Velasquez, in the Prado Museum, Madrid. The second part of "The Biography of a Prairie Girl," by Eleanor Gates, proves to be an idyl of child's life in the West, with pictures of Miss Cory, who, like the author, is a Western woman. Sylvester Baxter contributes a paper on "Civic Improvement in Street and Highway," with pictures by Guerin; J. B. Bishop gives his "Personal Recollections of E. L. Godkin," with whom he was associated on the editorial staff of the New York Evening Post; Miss Belle Vinnedge Drake records the details of "A Visit to the Empress Dowager" in Peking; J. M. Gleeson publishes notes about "Three Strange Animals"—the Maned Wolf, the Black Leopard, and the Serval—with pictures of all three; and the sixth portion of "Confessions of a Wife" carries the complications of the domestic tragedy to the point of intensity. President Hadley contributes a short article on "The Twofold Cause of Betting"; Professor Woodberry a critical estimate of the poetry of William Watson, of which an example is printed in "A Ballad of Semmerwater," with decorations by Henry McCarter; and there is a paper by the author of "Elizabeth and Her German Garden," entitled "On the Giving of Books," her first contribution to an American magazine.

Ellen Olney Kirk's new novel is published entire in the September number of Lippincott's Magazine. It is a comedy particularly suited to lazy early-autumn days when readers want sauce piquante served as well with literary food as with every-day meals. The story is American,



Warranted to give satisfaction.

GOMBAULT'S CAUSTIC BALSAM

A safe, speedy and positive cure for

Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

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It also prevents Curl Leaf. Endorsed by entomologists. This soap is a fertilizer as well as insecticide. 50 lb. kegs, \$2.50; 100 lb. kegs, \$4.50. Half barrels, 270 lbs., at 3 1/2 c. per lb.; barrels, 425 lbs., at 3 1/2 c. Large quantities, special rates. Send for circular.

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Price, \$60 cash on cars at factory.

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This press meets the requirements of those who desire to use a deep Box Press, and it is adapted to bale all kinds of material baleable. Easy to feed same, and economical. Leaves material in the best form, and makes compact bales to load cars to maximum. We make all styles of Upright as well as Horizontal presses. Send for our catalogue, giving full description, prices, etc.

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that is, the excess freight you will have to pay if you ship loosely baled hay.

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100,000 2-yr.-old Asparagus roots, 5 varieties. A special rate of \$3.50 per 1000 for 2 mos. for BARR'S, PALMETTO, CONOVER.

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Splendid Assortment of Ornamental, Shade and Fruit Trees.

EGGS from B. P. Rocks, Light Brahmas, Brown Leghorns, at \$1.00 per 13.

WRITE FOR OUR CATALOGUE.

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The Bonavista Nurseries will have some exceptionally fine apple trees for orchard this year. Wine Saps, Paragon (M. B. Twig), York Imperial (J. F. Winter), Albemarle Pippin, etc.

We did not have a complaint last season. Every tree is perfect and guaranteed, taken from the nursery block the day it is shipped, carefully packed.

Our prices are the lowest.

CHAS. F. HACKETT, Manager, Greenwood, Va.

WOOD'S SEEDS.

IF YOU WANT FINE

STRAWBERRIES

FOR HOME USE,

Plant Excelsior, William Beit and Aroma. These three varieties will give you a splendid crop of the finest fruit from the earliest to the latest. Price of plants, 60 cts. per 100. In 1,000 lots and over, \$3.50 per 1,000.

Our Fall Catalogue gives full descriptions of all the best varieties of Strawberries both for market and home use. Catalogue mailed free, write for it.

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FRAZER

Axle Grease Best in the world.

Its wearing qualities are unsurpassed, actually outlasting 3 bxs. any other brand. Not affected by heat. Get the Genuine.

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with a heroine "exquisite beyond all women!" Having at stake a fortune, she carries out an original scheme to marry the man she loves. Humor is paramount, and the plot stimulates, while that same charming human sentiment is evident which characterized Mrs. Kirk's earlier success, "The Story of Margaret Kent."

Besides the complete novel Lippincott's has a fine showing of short stories: Josiah Flynt contributes "The 'Won't Go Home'" which is a rattling good tale of a steam calliope and a party of speculators in the far Orient. Ina Brevoort Roberts's name to the list leads one to expect something extraordinarily good, remembering that she is the author of "The Lifting of a Finger." Her present story, "The Fifth Wheel," fully justifies this hope. "The Hidden Man," by Karl Edwin Harriman, is a first-rate story of a Western tramp, treated with vigor. The extreme pathos of Jennette Lee's story is offset by a happy ending. Its title, "A Judgment on Them," refers to a man and wife who dwell under one roof but who have not spoken to each other for ten years. A Mormon story by Lily Munsell is called "The Undoing of Apostle Jones." The underlying tragedy is brightened by a fourth wife's determination to see fair play. Albert Payson Terhune writes a tale about honor on a newspaper. This is entitled "A Park Row Galahad," and is an instance where a reporter learns that he "cannot serve two masters." It holds the interest throughout.

Eben E. Rexford always gives seasonable points on the subject of his specialty—gardening in all its branches. In the September Lippincott's he takes Time by the forelock in writing about "Fall Work in the Garden." He tells just the things people want most to know at this season, and tells them clearly and untechnically.

"Hilarity Hall" is the name of the long story by Carolyn Wells in the September St. Nicholas. It has to do with the lively adventures of eight girls who take a seaside cottage for the summer. An ideal girl's story.

This is only one of the many good things in this number. Particularly interesting is "The Little Colonel," the story of an Indian fight by Mrs. Guy V. Henry. "How the Weather is Foretold," by Clifford Howard is an entertaining account of Uncle Sam's weather bureau and its conduct. "A Little Journey Through the Air" is an illustrated account of a queer railroad abroad where the cars travel suspended in mid air.

Probably the best boy's story in the magazine is "Martyn Brown—Mascot," Ralph Henry Barbour. Marty is a snub-nosed lad who takes care of the players' bats. One day he played a more important part; and how he came to be the hero of a hard-fought game is the story that is told. There are a lot of clever rhymes, and also that very important department "The Young Folk's League," with its capital contributions from the young readers themselves.

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Put a handful of *glazed coffee* in a glass of water, wash off the coating, look at it; smell it! Is it fit to drink? Give

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the same test. It leaves the water bright and clear, because it's just pure coffee.

The sealed package insures uniform quality and freshness.

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Prefer a man who also understands care of orchards and shipping fruit. I offer a good home; new, five-room house; use of cow and garden; salary, \$20 per month and a few other perquisites; will pay more if the man will make the place pay expenses. Address

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Lettuce is one of the most satisfactory and profitable fall vegetable grown. Plant during Sept. for best results.

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Located on North river, Gloucester County, Va., for sale at a reasonable figure. Comprises 720 acres, 640 open and available to plow, well watered and suitable to all grains and grasses. Well adapted to grazing of both sheep and cattle. Fine shade, good house (11 rooms), large porches and cellar. Fifteen acres lawn, young orchard in bearing. Necessary out buildings; Post-office 1 mile from house; Good fences, large oyster shore. An ideal home and farm. Sale for division. Information by corresponding with D. P. SANDERS, Gloucester, Va., JOHN SANDERS, James Store, Va.

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Ten, Fifty and One Hundred Acres each, with good buildings, close to steam and trolley lines, easy access to the city. Also

GRAIN AND STOCK FARMS

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THE VIRGINIA LAND AGENCY, Richmond, a.

J. R. HOCKADAY, Manager.

WHAT TO DO IN AN EMERGENCY.

When an accident occurs there are certain things that may be done that will prevent the injury from becoming greater while waiting for the doctor. An inexperienced worker should not try to remove the patient unless it is imperative, or unless the weather is a cause of discomfort or danger; but even when moving is unavoidable, do not move the injured person farther than is absolutely necessary. Such aid as can be given should be given as quickly as possible, so that moving may not aggravate the trouble. Then lift the patient upon anything on which he may be placed in a flat position, first throwing over the improvised litter something soft. When it is possible to have two or three assistants for this moving one should devote his attention to protecting the wounded part.

In case of an accident from fire the most important thing to remember is that the air must be excluded from the burnt surface. In wounds of every description cleanliness is one of the healing factors; but in a burn the wound may be irritated by pulling away anything that may seem to be sticking to it. If any foreign substances, such as bits of clothing, should seem to be simply lying on the wound, they may be carefully picked off. If there are blisters, they must be pricked immediately and the water from them absorbed by old linen. Then the wound should be covered with sweet oil, vaseline, or any pure oil or ointment, and a cloth saturated with oil laid over it. Or one may use molasses, or the white of an egg, or dust flour over the surface.

One of the best remedies for such emergencies is "carrou-oil," which is made by stirring equal parts of lime-water and linseed oil into a thick paste.

A burn from grease or oil should be treated as an ordinary burn. One from an acid should be washed with warm water, or, if it is possible to get baking soda or common washing soda, put a pinch of it into the water and wash the wound with the solution. The object is to remove any of the acid that has not eaten into the wound. Then the wound should be dressed with oil.

Many persons die from shock whose burns are not fatal, consequently the patient should have absolute rest. Loosen the clothing and give stimulants in small doses, or hot coffee, hot milk—anything that is warm and nourishing. Keep the patient comfortably warm, applying hot-water bottles if the limbs seem cold. When coffee is used it should be made very strong, and given without cream or sugar.

An ordinary cut will stop bleeding upon the application of hot water or ice. If the blood shows signs of drying let it remain, as nothing will stop bleeding more effectively.

If blood spurts from a cut it is evidence that either a vein or an artery has been severed. In that case, take a handkerchief or a strip of cloth and tie it around the limb an inch or two above the wound—"above" meaning between the wound and the heart; the bandage being put on loosely enough to admit of insert-

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no matter where it is. Send description, state price and learn how. Est. '95. Highest references. Offices in 14 cities.
W. M. Ostrander, 1885 N. A. Bldg., Philadelphia

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All prices and sizes. Free list on application.

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\$3 PER ACRE AND UPWARDS.

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Known as the Hampstead Farm, situated on the Pamunkey river, for sale. Contains nearly 1600 acres, 800 of which is river bottom land, the remainder being upland and timber. Large deposits of green sand marl; brick barn with wood stable attached; also houses for sheep, etc. Splendid dwelling said to have cost \$60,000. Property now owned by stock company. Price, \$20 per acre, on easy terms. For further particulars, address

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To HOMESEEKERS.

"THE BUSINESS OF FARMING
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Is the title of a new pamphlet issued by the Norfolk and Western Railway Company. We will gladly mail you a copy.

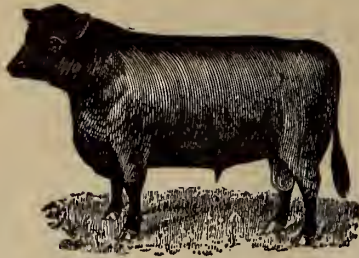
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One trotting bred brown gelding, coming 4 yrs. old, 15 1/2 hands, weight 1000. Trim as a fawn, and dashing in style and action. Can negotiate a mile in 3 minutes under the lines without effort. His future is big with promise. Sinevy, hardy and tough. With just a bit more of age and service will make a model family horse. On any city market he would go "like hot cakes" at \$200. To sell at once we will take \$150.

One 8 yr. old fine Hackney trotter, cross brown mare, 16 hands high, wt. 1,200. Gentle as a kitten. Fast under the lines, and with bottom to burn. Exceptionally strong and quick, she is at home in heavy draft work. Price, \$150.

One reg. Aberdeen-Angus Heifer coming 3 yrs. old, bred to our Imported herd bull, Rubicon Migno 2nd, No 4121. Price, \$100.

Two superb, reg. Aberdeen-Angus bull calves One reg. Dorset Buck, 4 yrs. old. Very large, fine and vigorous. Price, \$20.

One grade Dorset Ram Lamb. Price, \$6.

Sixteen Shropshire-Southdown (cross) Ewes, 2 and 3 yrs. old. In fine condition. Price, \$3.50.

Six Shropshire-Southdown (cross) Ewe & Lambs. Price, \$3.

One Shropshire Southdown (cross) Ram Lambs. Price, \$3.

Nine head beautiful, reg. Angora Goats; One Buck; Price, \$20. Six Does; Price, \$12 each. Two Buck Kids; Price, \$10 each. Lump price of nine goats, \$100.

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Cottage Valley Stock Farm,
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For Sale CHEAP.

One Kemp Manure Spreader, good as new, with drill attachment. Price, \$90.

Address **W. M. WATKINS & SONS,**
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CANVAS GOODS,
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STACK, WAGON,
IMPLEMENT, BINDER, HORSE
COVERS,
HAY CAPS, TENTS, Etc.**

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W. S. FOSTER, - Blacksburg, Va.

ing a stick or cane between the bandage and the limb. Twist the stick so that every turn the bandage is drawn tighter. This must go on until the bleeding either stops or materially diminishes. Then the bandage must be held in place, and a similar one, perhaps not quite so tight, applied below the wound. In this way the bleeding from the other end is controlled. But the bandage must not be allowed to remain on the limb too long or the results may prove disastrous.

Sometimes the wound is in a place where it is impossible to apply a bandage; in that case press the lips or sides of the wound together with the fingers, and keep them firmly closed by pressure.

For a dog bite no treatment is necessary unless the dog is mad. Of course, it is better to have the wound washed out with warm water and covered, so as to keep it perfectly clean; but beyond this there is nothing really necessary. If the dog is "mad," or there is a suspicion that it is mad, the wound should be cauterized.

A fainting fit is more alarming than serious. Lay the patient flat on a bed, or upon the floor, having the head, if possible, a trifle lower than the body. This can be managed, even when the patient has fallen upon the floor, by slipping under the body a pillow, blanket, or rug. See that there is plenty of fresh air, dash cold water in the face, hold ammonia under the nostrils, and when the patient is conscious give some strong coffee, or half a teaspoonful of aromatic spirits of ammonia in a little water. Do not try to make the patient swallow the stimulant just as he is recovering consciousness; there is great danger of choking him. After consciousness is restored demand that the patient shall rest.

Another form of unconsciousness is that which is caused by inhaling smoke or poisonous gases. Under such circumstances the patient should be given air at once, and the act of breathing stimulated by baring the chest and pouring on it first ice-cold water, then water a little hotter than the hand will bear, then the cold again, and so on. Afterward give a stimulant and rub the limbs and body briskly.

The symptoms of sunstroke are easily recognized. The patient breathes heavily, is flushed, and his temperature rises until he appears to be in a burning fever. He may be either conscious or unconscious. In either case the clothing should be stripped off, so that cold water or ice may be applied to the whole surface of the body. If ice can be obtained apply it to the head, binding it on with a handkerchief; dash cold water on the chest and body, and rub the whole body with ice or cold water. When consciousness has been restored, and the patient has cooled off, let him rest in a cool, quiet place.

An American and an Irishman were riding together, and coming across an old gallows by the wayside, Jonathan thought he would have a quiet laugh at Paddy's expense. "You see that, I calculate," said he, pointing to the gallows. "Now, where would you be if the gallows had its due?" Paddy replied: "Riding alone."

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Wishing to reduce my stock, will sell cheap. Every thing from Oak Hill Farm is guaranteed first-class, and as represented. Address

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Enclose stamp for reply.

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BY EATING "INTERNATIONAL STOCK FOOD"**



YOU CANNOT DENY ACTUAL FACTS

A Wonderful Growth of 360 Pounds in 160 Days By a "Runt" That Had Been Badly Stunted for Nearly 2 Years and Only Weighed 60 Lbs.

DOW CITY, IOWA.

International Stock Food Co., Minneapolis, Minn.

DEAR SIR:—I have a runt 2 years old which only weighs 60 pounds. It stands 18 inches high, 42 inches long, and 4 inches wide on widest part of the back. I would like to try "International Stock Food" and see if it will make this runt grow. Four of my neighbors owned it before I got it, and none of them could make it grow. I enclose a photograph which shows this hog is too weak to stand alone, and it will not eat.

F. C. HOWORTH.

DEAR SIR:—I enclose a photograph of the "runt" taken five months after our commencing to feed "International Stock Food." It weighs 420 lbs. and has developed into a fine looking hog. "International Stock Food" is a remarkable preparation for making hogs grow, and the two photographs I mail are positive proof. Yours truly, F. C. HOWORTH.

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**V. P. I.
Farm Bulletin**

Nice BERKSHIRE PIGS for sale now. Also a few DORSET RAM LAMBS left.

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**Pure Southdown Sheep
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**ARCADIA FARM.
COLLIE PUPS, BERKSHIRE PIGS and
INDIAN GAME FOWLS.**

FOR SALE.

E. M. BALL, - - - EMORY, VA.

**ELIJAH'S TRIBULATIONS WITH
HIS MULE.**

By M. W. EARLY.

A certain "Afro-American" citizen, by the name of Elijah, became the proud and happy possessor of a mule, on the strength of which he rented a piece of land and pitched a considerable crop. This land lay near a railway station, and for several months after he rented it, the local freight train passed there every day, exactly at noon, giving a shrill whistle as it passed, which served Elijah as a signal to unhitch the mule, and refresh both that animal and himself by dinner and an hour's rest. "Bless dat ole whistle," he would exclaim with a chuckle. "T'aint no use my havin' no watch nor clock! Dat whistle tells me de time jest as good, and my ole mule got so much sense. He knows it jest as well as I do. He stop his work whenever he hear dat whistle, and gin to look for his dinner."

Things worked smoothly along till all of a sudden, the schedule was changed and the freight train commenced to pass at 9 o'clock in the forenoon. The instant its piercing whistle was heard, the mule stopped short in the middle of a furrow, shaking himself as if to get rid of his harness.

"Gee up, ole fellow," called Elijah, coaxingly and encouragingly. "Get up and go on." But no, the mule, with that obstinacy characteristic of his tribe, took a firm stand and refused to budge. Having exhausted coaxing, Elijah next tried the persuasive power of a cudgel which he laid on with such heavy thwacks that the mule made a sudden bound, and dashed off, plow and all, not to complete the furrow, however, for he made a straight shoot for the stable where he was in the habit of being fed, and when at length, Elijah, panting and exhausted,

PIT GAMES

RED HORSE and IRISH REDS.

I have a fine lot of these Chickens for sale. April hatched, and well-grown. Cockerels \$1.00, Pullets 75 cents each, 1 Cockerel and 2 Pullets, \$2.00.

A. S. CRAVEN, - Greenwood, Va.

EGGS

From Pure-Bred Fowls, Cheap.

The Imperial Fruit and Poultry Farm is in a position to offer Eggs from pure-bred B. P. Rocks and S. C. B. Leghorns at 50c. setting of 15. Reference furnished.

F. H. HEYDENREICH, Prop., Staunton, Va.

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Well-bred and good layers. Fine farm-raised young stock for sale. Prices reasonable. Buy now and get the pick.

R. W. HAW, Jr., - Centralia, Va.

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Educated, bought and sold on commission, and kept by the month or year. High-class POULTRY and BELGIAN HARES for sale at reasonable rates. Write for circulars; no trouble to answer questions. Satisfaction guaranteed.

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Young stock for sale at all times.
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Pigs, eligible to registration, 8 weeks
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I offer thoroughbred and high-grade
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300 grade EWES, suitable for raising
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Virginia has a good many of our Dorsets,
and we note our old customers writing for
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50 breeding ewes for sale; also 1 reg.
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years; 1/2 Shropshire down, fine stock.
Likewise, some Chinese and Toulouse
Geese, fine birds.

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Registered and unrecorded. Stock first-
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First class yearling rams, and ewes of
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WARREN RICE, - Winchester, Va.

caught up with him, he had taken his stand, stolidly in the stall from which neither persuasion nor beating could dislodge him. After "wrestlin'" an hour with the stubborn brute, Elijah was forced to give in a feed him, as his strong will was not equal to the mule's strong "won't." By the time the mule had finished eating, it was nearly eleven, and as Elijah's dinner would be ready at twelve, he hardly thought it worth while to return to work before he had eaten himself, so altogether nearly four hours elapsed before both he and the mule were ready to resume work. The next day, the mule stopped again, when he heard the freight car whistle, and not another stroke of work would he do till he had been fed and allowed to rest an hour, and every day the same thing happened, till Elijah grew to hate that freight car whistle as much as the vanquished Saxons had ever hated the Norman Curfew. He was in despair. His crop was getting behind time, and everything were thrown into perfect confusion and discomfort by the mule's obdurate course of conduct. Elijah went to the freight car conductor and made him a piteous appeal to return to the 12 o'clock schedule, declaring "You done broke me up, Boss, wid your nine o'clock whistle. You done ruined me." But though the conductor sympathized with his woful plight, he assured him he was obliged to obey orders, and was powerless to change the schedule, so Elijah got small comfort from him.

There was a negro in the neighborhood who had long had a hankering for Elijah's fine young mule. He thought now was his opportunity, and resolved to shyly take advantage of it. He lived a few miles back of the railroad, out of sound of the whistle. With assumed carelessness, he dropped in, from time to time, and watched Elijah's harassment and perplexity. One day when the latter was especially worried (having missed a good dinner of fat possum by being too much pressed with his work to stop both at nine and twelve o'clock) the wily negro remarked, as if by a sudden inspiration, "I tell you what we mought do, brother Elijah, as you seem to be in such a bother." "What?" asked the old man, eagerly. "I mought take your worrisome ole mule off your hands and let you have my sorrel horse."

"Yes, but my mule is a heap younger and stronger dan your ole sorrel," replied Elijah, woefully.

"Dat may be so, brother 'Lijah. I ain't 'sputin' your word, but what good does dat do you, if your mule got to stop work ebery mornin' at nine o'clock? Now, my horse ain't got no foolishness 'bout de car whistle. You can take her out at 12 o'clock, or any hour dat suits you, and she ain't gwine to resist you." The wily tempter kept reiterating his arguments till after many days, Elijah made the concession of saying "he would see about it," on the strength of which his friend came next morning, mounted on his Rosinante and in high hopes that he would be able to consummate the swap that very morning and carry the mule home with him, and so perchance he might have done had not the sacrifice been averted at the last moment by the lucky

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Fine Shropshire...

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\$250 WILL BUY JACK, "STARLIGHT,"

As fine a Jack as there is in
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gentle, broke to harness, an unusual sure foal
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Satisfactory reasons for selling.

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Some extra fine
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Address L. G. JONES, BETHANIA, N. C.

BERKSHIRE PIGS..

I have for sale 40 thoroughbred
Berkshire Pigs, from 4 to 6 weeks
old. These are fine pigs; will sell
in lots to suit. Prices cheap.
Address

H. SWINEFORD, - Richmond, Va.

EAST RIVER SIDE SHORTHORNS.

Choice bull and heifer calves for sale.
Will make price very low for next 60
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chance of Elijah's landlord happening to ride by, and being called on by Elijah as referee in the swop. Seeing the old negro's deep distress at the prospect of parting with his beloved though obdurate mule, the gentle man good naturedly proposed a temporary swop of mules between Elijah and himself, only to hold good till the crop was wound up in the autumn. With great joy and relief, Elijah accepted this obliging offer, while his friend slunk away, discomfited at having the chalice dashed from his lips. By hard labor Elijah managed to catch up with his work and save his crop from destruction. As soon as he had gathered it in he joyfully resumed possession of his mule, and went off way into the interior of the country, far from the vexing sound of the car whistle.

CHOATE'S COUNSEL.

It seems always to have lain within the power of the distinguished lawyer and humorist, Rufus Choate, to lead a choleric client from ways of anger into the paths of peace.

Just before the war a Southern gentleman was dining with a friend in one of the best hotels of Boston. He was of French Creole extraction, and his name was Delacour.

The waiter was a colored man, and the Southerner gave his orders in a very dominating fashion, finding fault freely with what was put before him and the way in which it was served. Finally the waiter became incensed and told Mr. Delacour to go to a place warm and remote. The latter sprang furiously to his feet and would have shot the offender dead if he had not been restrained by his wiser friend, who said:

"You can't do that sort of thing here. You will have to remember where you are."

"Do you suppose that I am going to put up with such insolence and not be revenged?" said the enraged man.

"Certainly not. But do it by process of law."

The landlord was first interviewed and the waiter discharged. That was not sufficient to satisfy the wounded feelings of Mr. Delacour. He asked who was the best lawyer in the city, and was told it was Rufus Choate. Making his way to his office, he said:

"Mr. Choate, I want to engage you in a case. What will your retaining fee be?"

"About fifty dollars."


The check was made out and handed over.

"Now," said the lawyer, "what are the facts in the case?"

He was told. Said Mr. Choate thoughtfully:

"I know the United States law on the subject well, and I know the law of the Commonwealth of Massachusetts, and I can assure you, sir, that there is no power on earth strong enough to force you to go to that place if you don't want to go. And if I were you I wouldn't."

"Well," said the Southerner, accepting the situation, "I think I'll take your advice," and they parted good friends.—
HARRIET BOYER, in *September Lippincott's*.



Ripley's Compressed Air Cotton & Tobacco Sprayer

Finest Sprayer ever invented for spraying cotton and tobacco, trees, and whitewashing buildings, etc. Tested to 60 lbs. pressure. Has a safety valve. Can't burst. One minute's pumping will discharge contents of Sprayer in the form of a mist, covering every part of the foliage. Made of Galvanized Iron and Copper. Has a brass cylinder pump. Prices—5-gal. Galvanized, \$5.50; 4-gallon Galvanized, \$5.00; 5-gallon Copper, \$8.00; 4-gallon Copper, \$7.00; special pipe and nozzle for spraying underneath cotton, tobacco and shrubbery, 70c.

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Write for Catalogue and Discounts.

RIPLEY HARDWARE COMPANY,
Manufacturer of Sprayers and Spraying Mixtures,
Box 70, Grafton, Ills.

Registered HOLSTEIN-FRIESIAN

Cattle of NETHERLAND, DEKOL, CLOTHILDE and PIETERTJE families. Heavy milkers and rich in butter-fat. Stock of all ages for sale.

REGISTERED BERKSHIRES,

From the noted strains, Imported Headlight, Lord Highclere and Sunrise. PLYMOUTH ROCK CHICKENS.

N. B.—in the Stud: The Imported Hackney Stallion, "The Duke," registered in E. H. S. B. and A. H. S. B. Address

T. O. SANDY, Burkeville, Virginia.

Norfolk and Western and Southern R. R.

DEVON COWS....

Ten young DEVON COWS, thoroughbreds and high-grades with Calves by their sides. Want to sell them during this month. Can be seen if day's notice is given. Also JERSEY CATTLE and several YOUNG GUERNSEY BULLS. BERKSHIRE PIGS not akin. Several young BOARS ready for service.

M. B. ROWE & CO., Fredericksburg, Va.

LET ME HAVE YOUR ORDERS PROMPTLY FOR FALL SHIPMENT OF

BERKSHIRES



Imported SIR JOHN BULL and UNCLE SAM have become so famous that their pigs are often booked before birth. My supply did not meet the demand by one-third the past season.

A nice lot of Pure Blood BROWN LEG-HORNS for sale cheap; also Pure Blood ENGLISH SETTER PUPS at home made price—snow-whites and white and tans.

THOS. S. WHITE,

Lexington, Va.

BALE YOUR OWN HAY,

Finishes a perfect bale of standard size, either light or heavy. Write for descriptive circulars.

Millet, Sorghum, Pea Vines, etc., with a LITTLE GIANT, the only perfected high capacity hand power PRESS on the market.
Little Giant Hay Press Co., Dallas, Tex.

WHERE HE MADE HIS MISTAKE

One of the store windows down town displays an elaborate set of furniture of a style and arrangement that would be suitable either for a wedding-chamber or the sleeping-room of a wealthy bachelor. On a soft Turkish rug stands a richly-carved bedstead with a bed upon it seemingly ready for use, several fragile chairs with gilt frames, a big lounging chair, and a handsome dressing-case with a lofty mirror. Scattered about in picturesque confusion are many dainty bits of bric-a-brac.

A motley crowd stood in front of the window the other night, gazing admiringly at this picture of comfort. In the center of the crowd stood a big man with long flowing side whiskers. He was talking in a loud voice to a modest-appearing woman who clung to his arm.

"It's wonderful how they get up things nowadays," the man was saying. "Why, when I was a boy no one would ever think of chipping out grooves and hollows in a good solid piece of walnut like that bedstead there, and nobody would dare to put gilt on a chair for fear of ruining his friend's clothes. And just look at the images! Them's downright deceitful. Anybody can tell that the cat over there wasn't real. Everything about her's so natural except her tail, which is too short. Nobody ever seen a regular live cat with a tail like that. It's honest to have it that way, though, for it shows the firm's trying to do business on the square basis, and atn't trying to deceive no one—"

The big man's discourse came to a sudden end, for the cat rose to its feet, stretched itself lazily, and walked away.

Dissolve half a pound of the best glue in a teacupful and a half of water, add a teacupful of moderately strong vinegar and mix thoroughly. Keep in the dark and closely sealed, and it can be used without warming, unless in the coldest weather.

To make waterproof glue, soak it in water until softened through, but preserve the shape. Heat slowly in linseed oil until dissolved, then mix thoroughly. To make fire-proof glue, pour water over good glue and let it remain over night, then slowly melt and add white lead to make the right consistency. This will withstand fire but not boiling water. To fasten labels to tin, take a good yellow glue, break it into small pieces, cover with water and leave three or four hours. Pour off the water, place the glue in a wide-mouthed bottle or pint can, and cover with acetic acid. Set in warm water until dissolved, and incorporate the two by stirring.

On another page of this issue of our paper will be found the advertisement of Heebner & Sons, of Lansdale, Pa. As will be observed by the advertisement itself, these people are manufacturers of Threshing Machines and Tread-Powers. This does not, however, embrace their entire line of goods as they also manufacture the Union Feed and Ensilage Cutters, Feed Grinders, Peanut Pickers, etc. Heebner & Sons are not unknown to our readers, as they have advertised with us each season for many years.

THE MONEY MAKERS

**CUT YOUR CORN WITH THE
DEERING IDEAL CORN BINDER**



**SHRED YOUR STALKS WITH THE
DEERING HUSKERS & SHREDDERS**



"THE IDEAL LINE"
DEERING CORN MACHINES

ARE MONEY MAKERS
DEERING HARVESTER COMPANY CHICAGO, U.S.A.
WORLD'S GREATEST MANUFACTURERS OF
GRASS, GRAIN AND CORN HARVESTERS,
SHREDDERS & TWINE

St. LAMBERT JERSEYS

We have for sale a number of YOUNG BULLS from cows with butter tests ranging from 16 to 24 lbs. per week, and yielding from 5 to 6 gallons of milk per day.

We have more high testing ST. LAMBERT COWS than can be found in any herd in the United States or Canada.

INDIAN GAME FOWLS

We have also for sale a choice lot of INDIAN GAME CHICKENS—male and female. Also some choice WHITE WYANDOTTE COCKERELS. The Indian Game and White Wyandottes are the best general purpose fowls.

BOWMONT FARMS, SALEM, VA.

POLAND- CHINAS.



TECUMSEH G, 49283.

I have a limited number of pigs by my fine boars, "TECUMSEH G," 49283, and "MONARCH," 48705, and can furnish pairs not akin or related to those previously purchased. Young boars and sows of all ages. Send to headquarters and get the best from the oldest and largest herd of Poland-Chinas in this State at one-half Western prices. Address **J. B. GRAY, Fredericksburg, Va.**

When corresponding with advertisers, always mention
The Southern Planter.

There are very few firms in any kind of business in this country to day who have been at it longer than this one. They have been working along their chosen lines for more than sixty years, and it is very much to their credit to state that the Heebner goods are more popular today than ever before. Wherever they are known they are accepted as the synonym of superiority and honesty both as to design and material and also as to working ability. Write for their new catalogue and kindly mention this paper.

LITTLE GIANT HAY PRESS.

A novel device and one of evident merit, which is winning its way to the front with great strides, is the Little Giant Hand Hay Baler, manufactured by the Little Giant Press Co., of Dallas, Texas.

For years implement builders have given their thought, time and experiments to the designing and constructing of a practical and inexpensive appliance for the baling of hay and other kindred material. Thousands of tons of hay are lost to the farmer annually, because he feels that he cannot afford to purchase a high-priced power press. The Little Giant was designed to overcome this difficulty, and is pronounced by its scores of friends as a complete success. The firm will mail free of charge an exhaustively illustrated catalogue to interested inquirers.

AN OLD MAID.

In the suburbs of Madison, Wisconsin—if that charming little city may be said to have suburbs—dwells Aunt Pitcah Ann. She is a thrifty old soul who, when her cabin needed repairs recently, was well able to hire a fellow-African to mend it. In the course of his labors this dusky carpenter noticed that there were several children playing about.

"Whose chillun is dose?" he asked.

"Dem's mah chillun," replied Aunt Pitcah with pride.

"Is dat so? Whey's yo' husban'?"

"Why, now, I tell yo'. I ain' got no husban'. I says to mahse'f, I does, a long time ago, I says I do' wan' no husban's in mine. No, sah. When yo' got a husban' he always wan's tuh be a-meddlin' in the bringin' up the chilluns, an' w'at good is he, anyhow? Yo' answer me dat. He ain' no good—only fer me tuh suppo't. No, suh, I don' wan' no husban's in mine. I'se an ol' maid. Dat's what I is.—JOHN SWAIN, in the *September Lippincott's*.

Mention the *Southern Planter* when corresponding with advertisers.

COLLIE PUPS!

By prize-winning imported sires and trained dams. Eligible. Fit for bench, ranch or farm. Price, \$10, either sex. Also a book on the care and training of the Collie for all practical uses. Price, 50c. Copy of book free to purchaser of Collie.
Stock Farm, "MAPLEMONT," Albany, Ver.

GREAT JOINT PUBLIC SALE OF SHORTHORNS, ABERDEEN-ANGUS and HEREFORD CATTLE

At the Annual Fair of the S. W. Va. Ag'l and
Live Stock Association at

Radford, Va., October 14th, 1902.

Messrs. W. W. Bentley and J. T. Cowan will contribute about 30 head of Shorthorns. Mr. J. R. K. Bell will offer about 12 Aberdeen-Angus. Mr. H. L. Morgan will have a nice bunch of Herefords. (Other breeders will also contribute to this sale, but at this date, 22d, cannot say what number).

The quality of this Stock will be unsurpassed; all young and splendid individuals, and from the best breeders in S. W. Va. Parties desiring something very choice cannot afford to miss this sale.

Catalogue ready about October 1st. Send your name NOW for it.

ADDRESS **W. W. BENTLEY, Pulaski City, Va.**

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NASONS,
VA.
1902

"MOUNT SHARON STOCK FARM."

Reg. and Grade **HEREFORD CATTLE**
BRONZE TURKEYS & **MUSCOVY DUCKS**
Registered **SHROPSHIRE SHEEP**
Registered **POLAND-CHINA PIGS.**




NOW OFFERS FOR SALE

HEREFORD CATTLE.—Calves, entitled to registration, \$75 to \$100. Grade Calves by "Sir Edward" \$25 to \$40.

SHROPSHIRE SHEEP.—Bucks, one year old and over, \$15 to \$20. Buck Lambs, July delivery, \$10. and \$12. Ewe Lambs, July delivery, \$8. and \$10.

POLAND-CHINA HOGS.—Pigs, six weeks old, \$5. Pigs, two or three months old, \$7.50. Pigs, five months and over, \$15 to \$20.

M. BRONZE TURKEYS.—Toms, \$4. Hens, \$3. Eggs, per sitting of 12, when in season, \$4.

MUSCOVY DUCKS.—Pure White Drakes, \$1.25. Pure White Ducks, \$1. Pairs, \$2.25; trios, \$3.

BARRED PLYMOUTH ROCKS.

ROUEN GESE.—Ganders, \$2.50. Geese, \$2.50. Eggs, per sitting, \$3.00

WILLIAM L, Jr., No. 21058, half brother of Axtell, will serve a limited number of mares for \$25 the season. Mares boarded at lowest figures per month.

REPORTS.

- U. S. Department of Agriculture, Washington, D. C. Public Road Enquiries. Bulletin 32. Proceedings of the Third Annual Good Roads Convention of the State of New York.
- Farmers' Bulletin No. 157. The Propagation of Plants.
- Farmers' Bulletin No. 158. How to Build Small Irrigation Ditches.
- California Experiment Station, Berkley, Cal. Report of Work of the Agricultural Experiment Station of California for the years 1898-1901.
- Bulletin No. 141. Experiments with Deciduous Plants.
- Cornell Experiment Station, Ithaca, N. Y. Bulletin 203. The Care and Handling of Milk.
- Delaware Experiment Station, Newark, Del. Bulletin 56. Some Destructive Caterpillars.
- Bulletin 57. Sundry Notes on Plant Diseases.
- Illinois Experiment Station, Urbana, Ill. Bulletin 73. Comparison of Silage and Shock Corn for Wintering Calves for Beef Production.
- Bulletin 74. Standard Milk and Cream.
- Bulletin 75. Standardization of Milk and Cream.
- Bulletin 77. Bitter Rot of Apples.
- Kansas Experiment Station, Manhattan, Kan. Bulletin 100. Grapes.
- Maine Experiment Station, Orono, Me. Bulletin 84. Cereal Breakfast Foods.
- Maryland Experiment Station, College Park, Md. Agricultural College Quarterly.
- New Mexico Experiment Station, Mesilla Park, N. M. Twelfth Annual Register.
- Rhode Island Experiment Station, Kingston, R. I. Bulletin 85. Analyses of Commercial Fertilizers.
- South Carolina Experiment Station, Clemson College, S. C. Bulletin 72. Texas Fever.
- Bulletin 73. Analyses of Commercial Fertilizers.
- Virginia Department of Agriculture, Richmond, Va. Bulletin No. 10. Analyses of Fertilizers.
- Virginia Weather Service, Richmond, Va. Report for July.
- Wyoming Experiment Station, Laramie, Wyo. Bulletin 51. Sheep Feeding on the Range. Lamb Feeding.
- Bulletin 52. Experiment on Evaporation.
- Bulletin 53. The Measurement of Water for Irrigation.
- West Indian Bulletin. The Agricultural Department of the West Indies. Vol. 3, No. 2.
- Condensed Report of the Annual Meeting of the Holstein-Friesian Association of America, F. L. Houghton, Secretary, Putney, Vt.
- First Annual Report of the Illinois Corn Growers Association, Champaign, Ill.

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"TOP" BREEDING, CALVES NOT AKIN.

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GOLDEN LAD'S SUCCESSOR, First and sweepstakes over all at the Pan-American Exposition, the champion JERSEY BULL OF AMERICA, and out of Golden Ora, our great prize-winning cow, both born and developed on these Farms, is among our service bulls.

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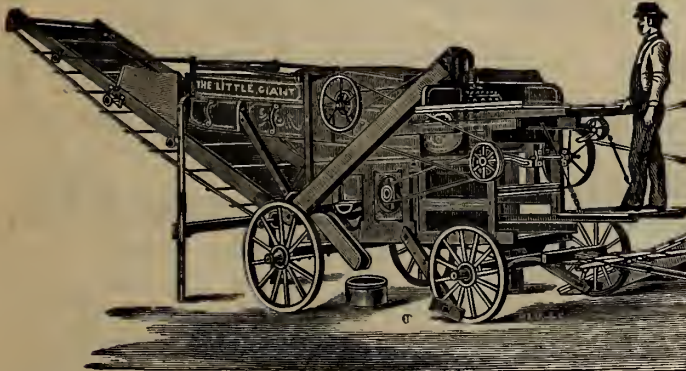
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Machines, and they have splendid improvements for 1902. They are built in first-class manner, and are strong and durable. We guarantee them to do the work satisfactorily.

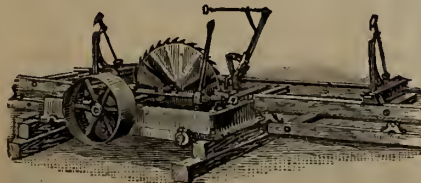
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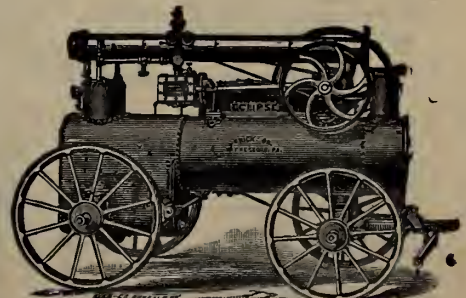
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**FARMER'S \$125 SAW MILL, PLANERS, SHINGLE,
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Cuts 2000 feet of lumber per day with only
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Poultry Architecture. Compiled by G. B. Fiske. 130 pages. To meet the constantly increasing demand for information about the construction of inexpensive poultry houses, the author has compiled this book; his chief aim having been to give designs of sufficient variety to suit conditions everywhere. These plans have been carefully selected from a much larger number, and only those are given which are in successful use and which are adapted to the needs of practical poultry keepers. Published by Orange Judd Co., New York. Price, 50 cents.

Standard Perfection Poultry Book. By C. C. Shoemaker. A standard work on poultry, ducks and geese, containing a description of all the varieties, with instructions as to their disease, breeding and care, incubators, brooders, etc. Published by Fred. J. Drake & Co., Chicago. Price, 50 cents.

These two books should be in the hands of every poultry keeper. We can supply them at the prices quoted.

The Business of Farming in Virginia. A Study of some of our Agricultural Resources, by Dr. Paul Scherer, issued by the Norfolk and Western Railway Company, Roanoke, Va. This is a useful little pamphlet for those seeking to know more about the State of Virginia. It will be sent on application.

CATALOGUES.

The Nursery & Seed Co., Charleston, W. Va. Price list of fruit and ornamental trees, small fruits, etc.

Angora goats. Jos. M. Neil, Charleston, W. Va.

American Seeds. Pinehurst Nurseries, Pinehurst, N. C.

PREMIUM LISTS.

South Carolina State Fair, Columbia, S. C. Premium list of the Thirty-fourth Annual Fair, October 28th to 31st, 1902.

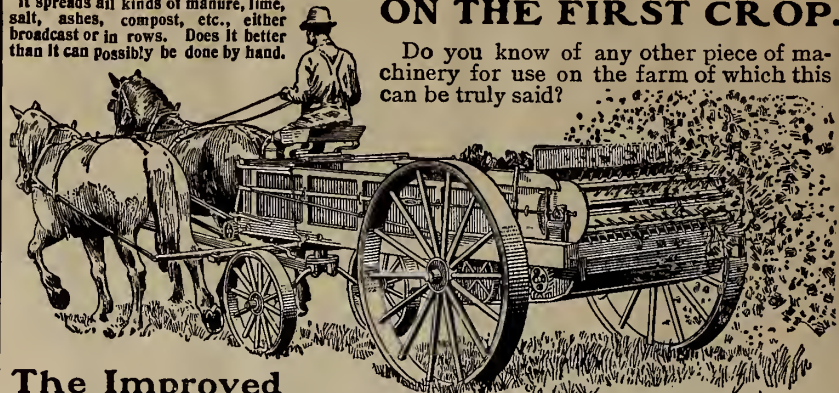
Kentucky State Fair, Louisville, Ky. Premium list of the First Annual Fair, September, 22-27, 1902.

CENSUS BULLETINS.

- | | | |
|----------|---------------|------------------------------------|
| No. 218. | Agriculture. | Wisconsin. |
| 219. | Agriculture. | Ohio. |
| 220. | Agriculture. | Kentucky. |
| 221. | Manufactures. | Boots and Shoes |
| 222. | Agriculture. | Utah. |
| 223. | Agriculture. | Virginia. |
| 224. | Agriculture. | Missouri. |
| 225. | Agriculture. | Mississippi. |
| 226. | Agriculture. | Tennessee. |
| 227. | Agriculture. | Louisiana. |
| 228. | Manufactures. | Glass Manufacture. |
| 229. | Agriculture. | Texas. |
| 230. | Agriculture. | Oklahoma. |
| 231. | Agriculture. | Washington. |
| 232. | Agriculture. | South Carolina. |
| 233. | Manufactures. | Manufacture of Clothing. |
| 234. | Agriculture. | South Dakota. |
| 235. | Agriculture. | Wyoming. |
| 236. | Manufactures. | Wool Manufacture. |
| 238. | Manufactures. | Musical Instruments and Materials. |

SAVES ITS COST ON THE FIRST CROP.

It spreads all kinds of manure, lime, salt, ashes, compost, etc., either broadcast or in rows. Does it better than it can possibly be done by hand.



Do you know of any other piece of machinery for use on the farm of which this can be truly said?

The Improved Kemp Manure Spreader

not only makes easy work of getting out the manure, but by the way in which it breaks it up and makes it fine, it more than trebles the value of the same. It will break up and spread evenly, manure that cannot be handled with a fork. It doesn't matter how hard, lumpy, caked, strawy, or stinky the manure is, this machine will spread it. It makes fine, well rotted manure go a long way in top dressing wheat in the spring, meadow lands, pasture, etc. Being mounted on broad faced wheels, it can be handled on any kind of ground without serious cutting in or rutting. Can spread back and forth, as front wheels turn entirely under. Can be turned on the ground it stands on. 1902 machine has our new **Beater-Freeling Device, Apron-Returning Device** and numerous other improvements. Send for latest catalogue (free) and read about these and other advantages and also about "How to Grow Big Crops."

Remember that the only original and genuine Kemp Manure Spreader is the one made by ourselves.

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CISMONT STOCK FARM offers well developed young Dorsets of the best blood of England and America.

Prices reasonable.

G. S. LINDENKOHL, Keswick, Albemarle Co., Va.

THE OAKS. 6 SHORTHORN BULL CALVES,

(Eligible to registry) FOR SALE; Also 4 Grades.

100 high-grade SHROPSHIRE EWES; good ones, and some of them bred. I never offered a better lot of stock.

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URY FARM BREEDER OF HOLSTEIN-FRIESIAN Cattle.

Royally Bred and Individually as Good as their Breeding.

OFFERINGS FOR THIS MONTH—15 young bulls, from 1 to 18 mos. old. Service bulls, Ury Alwina Count Paul DeKol 23206, Count DeKol Mechthilde 22942, DeKol 2d Butter Boy 3d, No. 2, 29299. Parties desiring fine, young bulls by above sires and from elegantly bred dams, would do well to write us.

THOS. FASSITT & SONS, SYLMAR, MD.

Save Time, Labor and Money

by having a threshing and power outfit of your own.

This No. 3 Pennsylvania Thresher and Cleaner and Roller Bearing Level Tread Power is the best individual outfit for threshing rye, barley, oats, fax, rice, alfalfa, millet, sorghum, timothy, etc. Will thresh and clean 100 to 150 bushels of wheat per day. Also made in two and three horse sizes. Power can be used for cutting ensilage and dry feed, shelling all kinds of grains, to run the saw, green horse cutter, pump water, separate cream, churn, etc. Also make lever powers, Feed and Ensilage Cutters, Grinders, Saws, etc. Heebner & Sons, 25 Broad St., Lansdale, Pa.



WHAT THEY TALKED ABOUT.

"I was at luncheon the other day," said a North Side woman, "where the hostess was a graduate of Smith College, three of the guests were graduates of Wellesley, two went through Vassar, two had been Bryn Mawr girls, and the other ladies present were graduates of Northwestern, the University of Chicago and Wells, respectively."

"Well," one of her hearers said, "it must have been very interesting. How I wish I could have been there. What did you talk about?"

"Let me see. Oh, yes. About how hard it is to keep help."—*Chicago Record-Herald.*

SENATOR TILMAN'S TAR.

A friend of Senator Tilman was inquiring about the politics of the Tilman family.

"We are all Democrats," asserted the Senator, enumerating his relatives, "all tarred with the same stick."

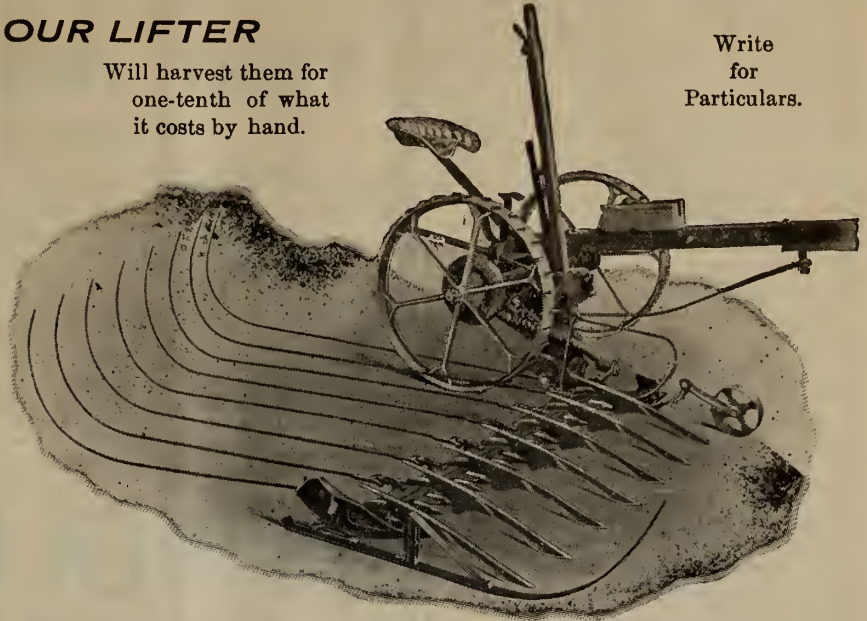
"Ah," observed the caustic inquirer; "but, Senator, didn't you get a little more tar than the others?"—*New York Times.*

Mention the *Southern Planter* when writing advertisers.

PEAS ARE AS GOOD AS COLD THIS YEAR.
OUR LIFTER

Will harvest them for one-tenth of what it costs by hand.

Write for Particulars.

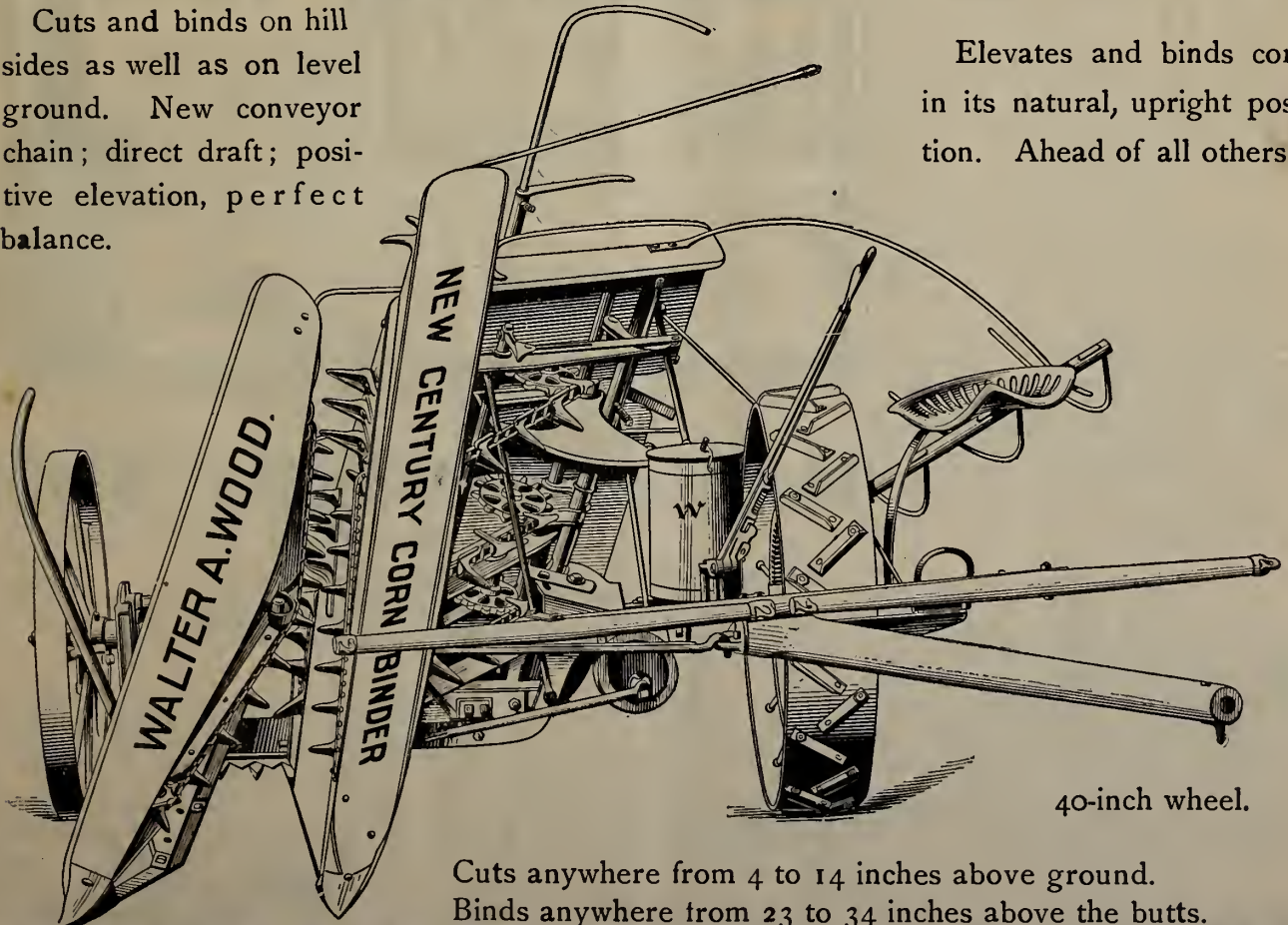


THE VINE AND ROOT MACHINERY COMPANY, Port Huron, Michigan.
Manufacturers of Pea, Bean, Beet and Chicory Farm Tools, and "THE MEAD" Full Circle, 2-Stroke Hay Press.

The Newest and Latest CORN HARVESTER

Cuts and binds on hill sides as well as on level ground. New conveyor chain; direct draft; positive elevation, perfect balance.

Elevates and binds corn in its natural, upright position. Ahead of all others.



40-inch wheel.

Cuts anywhere from 4 to 14 inches above ground.
Binds anywhere from 23 to 34 inches above the butts.

WALTER A. WOOD, M. and R. M. Co., Southern Office, 1422 E. Main St., Richmond, Va.

MAKING EXPENSES.

When Edward Payson Hammond, the great revivalist, passed through Illinois in the late sixties he did not neglect Galesburg; he felt that Galesburg generally needed him, and that Ox-Horns Marshall needed him in particular.

A crown of glory awaited any revivalist who could win to the heavenly way John Marshall, the Galesburg tailor, whose store sign was a pair of huge, wide-curved horns, arching above his door. No one in Galesburg who knew of Marshall and his record put any faith in the old saw that it takes nine tailors to make a man. It was generally conceded that Ox-Horns Marshall, when he was properly loaded and carefully aimed in the direction of serious trouble, could attend to any nine men of the vicinity, near or remote. The ox-horns, which were his crudely improvised heraldic device, were acknowledged to be no more than justly typical of his strength and of his prowess in such bickerings as the Illinois of that clamorous day provided.

With Hammond, religion came to Galesburg. And, as it came to Galesburg with its wrath and its repentance, it came to Ox-Horns Marshall.

He reformed.

Galesburg, dazed at first, at last accepted the wonder of his reformation; but it hastened its evening meal in order to go to church and gaze with awe upon this child of evil from whom the blackness had been washed out. The glory of his amendment spread in undiminished radiance from town to town, and travelling salesmen—roystering friends of his in the unregenerate days—attended the revival meetings in order to see Ox-Horns Marshall bow that terrifying front of his in earnest, humble prayer.

There were four of them in the rear of the sacred edifice, one night, when the reformed one felt the time had come for him to play a Christian's part. He walked forward, seized the plate, and began to take up the collection. He did not see his friends of sin until he came directly to their pew; he was suffering from the stage fright which seizes every man to whom that solemn plate is first introduced with all its stern responsibilities. Their presence took him by surprise. But his courage rose with the emergency.

"Chip in, boys!" he whispered hoarsely. "Salvation's free. But oh, dear friends, remember, it costs like hell to run a Methodist church!"—*Lippincott's Magazine for August.*

APPLE CATSUP.

Pare and core $\frac{1}{2}$ bushel ripe sour apples. Cook in sufficient water to prevent burning, using porcelain or granite vessels. When cooked, rub through a colander and return to the fire, adding 4 oz. salt, 3 oz. black pepper, 1 oz. cinnamon, $\frac{1}{2}$ oz. ground cloves, 1 dram cayenne pepper, 1 teacup sugar, $\frac{1}{2}$ gallon vinegar. Let boil five minutes, and seal or bottle in stone or glass. This is original, and is our favorite catsup. The flavoring may be varied.

"If you say 'please,' I'll give you a piece of pie." "An' if I say it twice, auntie, will y' give me two pieces?"

Your money back

if you are not satisfied

DO YOU SUPPOSE that a company with a capital of \$500,000.00, paid in full, and the proud reputation of 36 years of continuous success, would make such an offer and not carry it out to the letter?

DO YOU SUPPOSE we would jeopardize our standing with the public and our chances of still greater success by failing to fulfil any promise we make?

DO YOU SUPPOSE we would make such an offer if we did not have the utmost confidence in the satisfying quality of our goods?

WE KNOW we can please you and save you money, for HAYNER WHISKEY goes direct from our distillery to you, with all its original richness and flavor, carrying a UNITED STATES REGISTERED DISTILLER'S GUARANTEE of PURITY and AGE and saving you the big profits of the dealers. That's why it's best for medicinal purposes. That's why it's preferred for other uses. That's why we are regularly supplying over a quarter of a million satisfied customers. That's why YOU should try it.

Direct from our distillery to **YOU**
Saves Dealers' Profits! Prevents Adulteration!

HAYNER WHISKEY

PURE SEVEN-YEAR-OLD RYE

4 FULL QUARTS \$3.20 EXPRESS PREPAID

We will send you FOUR FULL QUARTS of HAYNER'S SEVEN-YEAR-OLD RYE for \$3.20, and we will pay the express charges. When you receive the whiskey, try it and if you don't find it all right and as good as you ever drank or can buy from any body else at any price, then send it back at our expense and your \$3.20 will be returned to you by next mail. How could an offer be fairer? We take all the risk and stand all the expense, if the goods do not please you. Won't you let us send you a trial order? We ship in a plain sealed case; no marks to show what's inside.

Orders for Ariz., Cal., Col., Idaho, Mont., Nev., N. Mex., Ore., Utah, Wash. or Wyo., must be on the basis of 4 Quarts for \$4.00 by Express Prepaid or 20 Quarts for \$16.00 by Freight Prepaid.

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HEEBNER'S "UNION" FEED AND ENSILAGE CUTTERS

are the only thoroughly up-to-date machines in dry fodder cutting. They cut and crush in one operation. Prepares the nutritious lower stock, making an excellent and much rolled food. No waste. Easy to maintain. It is easier to grow two tons of fodder than one ton of hay on the same ground. Fodder is equal to hay in feeding value. The corn itself is clear gain. *Shredding attachment for \$5.00.* You then have cutter, crusher and shredder combined in one. Not much more expensive than other machines, but far more valuable. Send for free booklet.

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Of Fruit and Ornamental Trees, Small Fruit Plants, Roses, Shrubs, etc., etc., for the Fall of 1902 is now ready. The assortment we offer is one of the most complete in America, and consists only of the reliable and tested varieties. OUR PRICES are reasonable, consistent with products of the HIGHEST QUALITY. A copy of this list, and our general catalogue, will be sent FREE for the asking.

Turnips, Spinach, Kale,
And everything in Seeds.

**Bee Keepers Supplies,
Fertilizers**

For any and every purpose.

Write us for anything you may need, our prices will be interesting.

THE NURSERY & SEED CO.,
Charleston, W. Va.

ANGORA GOATS.



They are brush exterminators. Fleece more valuable than wool. If you have brush-land you cannot afford to clear it except by the Angora Goat. The demand for the flesh and fleece is great and is still growing. You will find a flock of these animals a profitable investment. I can supply you with registered and unregistered stock, in pairs, trios, or any quantity from one to a car-load. Lowest prices quantity considered. Write me,

JOS. M. NEIL, Charleston, W. Va.

Pedigrees traced and tabulated. Catalogues compiled and circulars prepared. Special attention given registration matters pertaining to thoroughbred and trotting horses

..BY..

W. J. CARTER (Broad Rock),
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Correspondent of

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SOUTHERN PLANTER, Richmond, Va.
SPIRIT OF THE TIMES, New York.
KENTUCKY STOCK FARM, Lexington, Ky.

REFERENCES.—Mr. A. B. Gwathmey, Cotton Exchange, New York; Mr. W. N. Wilmer, of Wilmer & Canfield, Lawyers, 49 Wall St., New York; Col. K. M. Murchison, Banker, Wilmington, N. C.; Mr. L. Banks Holt, Proprietor Onelda Cotton Mills and Alamance Farm, Graham, N. C.; Col. B. Cameron, Fairintosh Stud Farm, Stagville, N. C.; Maj. P. P. Johnson, President National Trotting Association, Lexington, Ky.; Mr. Thos. N. Carter, President Metropolitan Bank, Richmond, Va.; Mr. Jas. Cox, Belgravia Stock Farm, Mt. Jackson, Va.; Capt. John L. Roper, Foxhall Stock Farm, Norfolk, Va.; Capt. R. J. Hancock, Eilerslie Stud Farm, Charlottesville, Va.; Sam'l Walton, Walton Farm, Falls Mills, Va.

1902. **STALLIONS AT** 1902.
GLENCOE STOCK FARM.

GOLDEN DENMARK, A grand looking, chestnut horse, registered in American Saddle-Horse Registry.

ABD. EL KADER, JR., Chestnut horse, by Abd. El Kader, dam by Senator. This horse sires high-class Hunters, Jumpers and Steeplechasers.

For terms, address

J. B. McCOMB & BRO., Somerset, Va.

N. B.—Hunters, Jumpers and Gaited Saddle-Horses for sale.

RICHMOND HORSE SHOW ASSOCIATION.

SECOND ANNUAL EXHIBITION,

OCTOBER 14, 15, 16, 17, 18, 1902.

\$7,000 IN PRIZES.

Entries Close Sept. 27.

J. T. ANDERSON, Pres., W. O. WARTHEN, Sec.,
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AINSLIE CARRIAGE CO.,

Nos. 8, 10 and 12 Tenth St., RICHMOND, VA.

Building Carriages to order is our special business.

Repairing and Repainting done, and best material used. A full line of all the latest styles.

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**FINE HARNESS, SADDLE and
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1106 Hull Street, - |MANCHESTER, VA.

PLANTAIN FOR POISON IVY

As the season of poison ivy returns, I am reminded of some of the remedies offered last year through your paper. I have tried them all, and some more besides. The only external application that gave any permanent relief in my case was sweet spirits of nitre.

Now after nearly 40 years, experience with the plague, let me say that an ounce of prevention is worth a pound of cure. My remedy is so simple that I find it difficult to induce people to try it. It is to make use of plantain, the wide-leaved kind, very common in these parts. I do not know the botanical name. It can be steeped and the juice drank, or in my case when I came to a nice fresh leaf I would pick it, chew it, and swallow the juice. I have never known a case in which it has been faithfully tried to fail to give relief; that is, it acts on the system so that one can work in the ivy without danger of getting poisoned. I can mow in it with shoes and no stockings on, with no evil results. I have seen those who could eat it and not be affected at all.

I will give some cases to prove my statements. My father could not go near this ivy without getting poisoned. Every year after haying he would have a regular time with boils and abscesses to get it out of his blood. About 30 years ago he heard of the use of plantain. He has not been poisoned to speak of since, although working in it every year.

My wife was one of the worst cases I ever knew. If she went out after berries, she was sure to be poisoned. It would come out all over her body and make her nearly crazy. She tried every known outward application without relief. It was two years before I could induce her to make a thorough trial of plantain. At last she steeped the leaves and took it regularly for a month or more, and for the past 14 years has not been poisoned at all. A new man in the neighborhood said it was worth \$10 to him last year. Other cases might be cited, but these are some of the worst. I have not heard a case that plantain did not help after a fair trial. I sometimes chew a little plantain, usually before breakfast. I have not been poisoned for 30 years, only slightly when I get the inky-black juice on my bare skin.

Franklin County, Mass. C. S. HALE.

WHERE THE FUN COMES IN.

"Oh, yes," said the young housekeeper, "I keep a complete set of household-account books, and it's more fun than a little."

"Fun!" ejaculated the neighbor.

"Yes, indeed. I enjoy it so much."

"Enjoy what?"

"Why, watching my husband trying to straighten them out for me, of course. I get him to do it about once a week."—*Brooklyn Eagle.*

UNNECESSARY EFFORTS.

Keegan: "Old man Rafferty near had a fit when he heard his darter an' young Rooney had bin married fer six months."

Regan: "Cu'd yez blame him? There he'd bin treatin' th' young blackguard loike a gintleman fer six month's, jist thyrin' to git him into th' family."—*Judge.*

LEE'S * PREPARED * LIME

AGRICULTURAL LIME

The Old Reliable for WHEAT, OATS, CLOVER and OTHER GRASSES; has stood the test for twenty-five years, being composed principally of Hydrate of Lime, Sulphate of Lime and Potash.

If you wish to IMPROVE your land, use a ton to four acres for WHEAT and CLOVER, or if you wish to seed it for other GRASSES where the land is in good condition, use the same quantity and it will give you a good STAND and GROWTH of GRASS. For reclaiming POOR land, where there is little or no VEGETATION, COVER naked places with litter from the barnyard or forest, using the same quantity, and sow winter OATS and CLOVER.

FRUIT TREES.

Maj. G. A. Barksdale of Richmond, Va., has used our PREPARED LIME on his fruit trees, and says it has made wonderful improvement, both in the condition of the trees and quality of the fruit.

OUR SPECIAL WHEAT FERTILIZER.

We put this brand on the market only a few years ago, and have had very flattering results. The best farmers say that they get better STAND and GROWTH of GRASS and CLOVER from it than from other fertilizers. This we can confidently recommend for CORN-LAND or any other land of fair fertility.

PLAIN SHELL LIME

Constantly on hand at lowest prices.

No. 1 WOOD-BURNT LIME

In car lots at lowest market price from kilns.

Send for Circular and Prices.

A. S. LEE & SON, 102 S. 13th Street, Richmond, Va.

* VIRGINIA DIVISION. *

Farmers Mutual Benefit Association.

A Fire Insurance Association, chartered by the State for the farmers of Virginia, under an amended and well protected plan.

Insures, against Fire and Lightning, only country property—no stores or unsafe risks. Average cost per year for three years has been \$3.66½ per \$1000, including dwellings, barns, produce, &c.,—about one-third the usual cost of insurance to farmers. Amount of property insured \$325,000. Estimated security in real and other estate, \$600,000.

For further information, address,
MENTION THIS JOURNAL.

CHAS. N. FRIEND, General Agent,
CHESTER, VIRGINIA.

Leather Life
(TRADE MARK REGISTERED.)

Prolongs the wear of HARNESS, SHOES, Etc., fully 100 per cent. Save half the yearly Shoe and Harness expense. Guaranteed to do all we claim or money refunded. Write JOHN MFG. CO., Box 15, Hurricane, W. Va.

FARMERS' NATIONAL CONGRESS.

It is quite probable that farmers generally do not fully realize the scope and extent of the Farmers National Congress, as otherwise they would take a much deeper interest in it. The topics discussed are more particularly those of a national or international character, quite different from what is generally on the programmes at farmers' institutes. The following is a copy of the program for the 1902 meeting:

1. Interoceanic canal.
2. National irrigation.
3. Reciprocity—how may it affect agricultural interests?
4. Effect of present insular possessions on the agriculture of the United States.
5. Preservation of forest and fruit trees and reforestation.
6. Injurious insects, insect pests and fungi.
7. What part of a man's farm does he sell when he sells the crop?
8. Postal reforms particularly affecting the farmer.
9. Mutual relations of northern and southern farmers.
10. Dairy interests of the United States as related to the markets of the world.
11. Farm products other than dairy products in the markets of the world.
12. The labor problem from the farmer's standpoint.
13. How can we best build up our merchant marine?

The Farmers' National Congress is made up of delegates and associate delegates appointed by the governors of each State. Every governor appoints as many delegates as the State has representatives in both houses of Congress, and as many associate delegates as he chooses.

The meeting will be held at Macon, Ga., October 7-10, and the people of that city will give a hearty welcome to all who attend.

The Southeastern Passenger Association has granted a rate of one fare for round trip, and there is a fair indication that the other passenger associations will make better than an excursion rate.

The men who will be invited to take part in the program will be the choicest that can be selected, and each one will be an acknowledged leader in his line. Isn't it about time the farmers took a practical hand in helping to solve the problems that pertain to their own affairs?

We hope to have at least 1,000 delegates, associate delegates and visitors.

John M. Stahl, 4328 Langley Avenue, Chicago, is secretary, and will gladly answer any correspondence for the Congress.

J. H. REYNOLDS,
Treasurer.

EXTRACTS FROM A CYNIC'S
DICTIONARY.

Crank.—A person whose views are the opposite of your own.

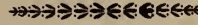
Egotist.—A person who thinks as much of himself as other people do of themselves.

Honor.—That which people talk about when they want to get out of doing something they don't want to do.

Society.—That which we lay the blame on when anything goes wrong.—JOHN ELIOT, in the *September Lipincott's*.

Why must your nose be in the middle of your face?—Because it is the scenter.

DON'T READ THIS.



We beg to announce to our patrons that we are daily receiving an immense lot of

**FURNITURE, STOVES, OIL-CLOTH,
CARPETS, MATTINGS, PARLOR
FURNITURE and odd pieces.**

We will endeavor to make this Opening Fall Season more attractive and the goods more pleasing than ever before.

The prices we have arranged are very low, despite the advance in everything imaginable.

Buying in very large quantities enables us to give our patrons the benefit of lower prices than we have heretofore.

M. ROSENBLOOM & SON, The Mail Order House,

1536 E. Main Street, Adjoining New Main Street Depot, RICHMOND, VA.



Japan Plums

And all other desirable standard and new varieties of PLUMS, APPLE, PEACH, PEAR and ORNAMENTAL TREES, SHRUBS, ROSES, Etc.

**HEADQUARTERS FOR TENNESSEE
PROLIFIC STRAWBERRY.**

The Most Reliable Variety Ever Grown in the South.

Three hundred and fifty acres under cultivation. Write us if you contemplate planting. Catalogue free.

AGENTS WANTED. WRITE FOR TERMS.

W. T. HOOD & CO.

OLD DOMINION NURSERY.

RICHMOND, VA.

IT STANDS FOR BIG CROPS.

For uniform drilling of grains, any kind and any amount per acre for grass seed sowing and even distribution of lumpy, damp or dry fertilizers, nothing equals the

SPANGLER Low-Down Drill

Grain and Fertilizer
Positive force feed for fertilizer, grain and grass seed. Drills any depth, perfect regulation, low steel or wood frame, high wheels with broad tires. Easy to fill and operate. Light draft. Investigate before buying. Write for free catalogue.
SPANGLER MANFG. CO., 501 QUEEN STREET, YORK, PA.

STANDARD EVERYWHERE.
FULLY WARRANTED.



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Our Clubbing List.

The following list of papers and periodicals are the most popular ones in this section. We can SAVE YOU MONEY on whatever journal you wish.

DAILIES.	PRICE ALONE.	WITH PLANTER.
The Dispatch, Richmond, Va.....	\$ 3 00	\$ 3 00
The Times, " "	3 00	3 00
The Post, Washington, D. C.....	6 00	6 00
SEMI-WEEKLIES.		
The Dispatch, Richmond, Va.....	1 00	1 25
The World (thrice-a-week), N. Y.....	1 00	1 25
WEEKLIES.		
Harper's Weekly	4 00	4 00
" Bazaar.....	1 00	1 40
Montgomery Advertiser.....	1 00	1 00
The Baltimore Sun.....	1 00	1 35
Breeder's Gazette	2 00	1 75
Hoard's Dairyman.....	1 00	1 35
Country Gentleman.....	1 50	1 75
The Times, Richmond, Va.....	50	65
Religious Herald, Richmond, Va.....	2 00	2 25
Central Presbyterian, " " ...	2 00	2 50
Christian Advocate, " " ...	1 50	1 75
Turf, Field and Farm.....	4 00	4 00
Spirit of the Times.....	4 00	4 00
Horseman.....	3 00	3 00
SEMI-MONTHLIES.		
Wool Markets and Sheep.....	50	75
Dairy and Creamery.....	50	75
Commercial Poultry.....	50	75
All three.....	1 50	1 15
MONTHLIES.		
North American Review.....	5 00	5 00
The Century Magazine.....	4 00	4 25
St. Nicholas "	3 00	3 25
Lippincott's "	2 50	2 50
Harper's "	4 00	4 00
Forum "	3 00	3 25
Scribner's "	3 00	3 25
Frank Leslies "	1 00	1 35
Cosmopolitan "	1 00	1 35
Everybody's "	1 00	1 35
Munsey "	1 00	1 35
Strand "	1 25	1 65
McClure's "	1 00	1 35
Puritan "	1 00	1 35
Review of Reviews.....	2 50	2 75
Leisure Hours.....	1 00	1 25
Blooded Stock.....	50	50

Where you desire to subscribe to two or more of the publications named, you can arrive at the net subscription price by deducting 50 cents from "our price with the *Planter*." If you desire to subscribe to any other publications not listed here, write us and we will cheerfully quote clubbing or net subscription rates.

Subscribers whose time does not expire until later can take advantage of our club rates, and have their subscription advanced one year from date of expiration of their subscription to either the *Planter* or any of the other publications mentioned.

Don't hesitate to write us for any information desired; we will cheerfully answer any correspondence.

We furnish no sample copies of other periodicals.

Seed House of the South.

- RED CLOVER.
- MAMMOTH CLOVER.
- CRIMSON CLOVER.
- WHITE CLOVER.
- LUCERNE CLOVER.
- ALSYKE CLOVER.
- BOKHARA CLOVER.
- JAPAN CLOVER.
- BUR CLOVER.



- TIMOTHY.
- ORCHARD GRASS.
- RED TOP or HERDS GRASS.
- KENTUCKY BLUE GRASS.
- RANDALL GRASS.
- TALL MEADOW OAT GRASS.
- JOHNSON GRASS.
- GERMAN MILLET.
- BUCKWHEAT.
- OATS and CANE SEED.

"Whatsoever One Soweth, That Shall He Reap."

We sell strictly reliable **FIELD AND GARDEN SEEDS** of every variety at **Lowest Market rates**, included in which are **RAGLAND'S PEDIGREE TOBACCO SEEDS.**

WE ALSO SELL

Our Own Brands of Fertilizers

For Tobacco, Corn, Wheat, Potatoes, &c.

Pure Raw-Bone Meal, Nova Scotia and Virginia Plaster and Fertilizing Materials generally.

Parties wishing to purchase will find it to their interest to price our goods. Samples sent by mail when desired.

Wm. A. Miller & Son, 1016 Main Street LYNCHBURG, VA.

Headquarters for Nursery Stock.

WHOLESALE AND RETAIL.

We make a specialty of handling dealers' orders.

ALL STOCK TRUE TO NAME.

- Apples, Nectarines, Pecans, Ornamental and
- Pears, Cherry, Chestnuts, Shade Trees,
- Peach, Quinces, Walnuts, Evergreens,
- Plum, Almonds, Small Fruits, Roses, Etc.
- Apricots,

CALIFORNIA PRIVET, for Hedging.

WRITE FOR CATALOGUE.

..AGENTS WANTED..

FRANKLIN DAVIS NURSERY Co., Baltimore, Md.

BUSY! BUSY! BUSY!

THAT'S NO NAME FOR IT; THAT'S WHY OUR AD IS NO LARGER THIS ISSUE--WE ARE TOO BUSY TO GET UP ONE.

Look Over This in a Hurry and You Will Surely "REGRET IT."

Best Family Flour, bbl.....	\$4 25	bottle.....	85
Granulated Sugar.....	4½		\$9 00 per dozen.
Rock Candy Syrup, gallon.....	40	Juniper Gin, for kidney and bladder troubles. Cures	
Something fine, regular price, 50 cents.		weak and lame back, per gallon.....	2 00
Pure Lard, any quantity.....	12	Old Northampton Apple Brandy, per gallon.....	2 00
2,000 bushels Clover Seed.....	2 90	Clemmer Whiskey, per gallon.....	2 00
10,000 bushels Choice Seed Wheat.....		Will sell any quantity of these medicines at same	
40,000 bushels Winter Seed Oats.....		price.	
Arbuckle's Coffee.....	11	New Large, Fat Mackerel in 15-lb. buckets.....	98
Golden Rio Coffee.....	10	The regular price is \$1.50, we are overstocked and	
Country Cured Side Bacon.....	12½	want to move them.	
10,000 bales Choice Timothy Hay.....	70	New Prunes.....	5
New Cut Herrings, dozen.....	12	Octagon Soap, 100 cakes.....	4 00
McDermott's Fine Malt Whiskey, sure cure for chills		Finest English Breakfast Tea.....	45
and fever, loss of appetite, dyspepsia, consump-		Carolina Rice.....	6
tion, sleeplessness, enriches the blood and builds		Home-Made Blackberry Brandy, per gal., including jug..	75
up the system. No family should be without a			

SEND FOR OUR PRICE-LIST,

Send me your orders, and if I don't save you big money on your Groceries, Seeds, Feed and Medicines I will be very much disappointed.

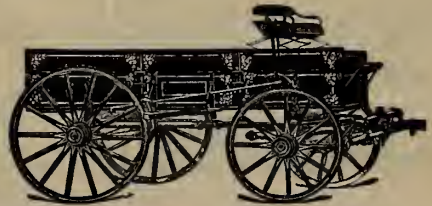
D. O'SULLIVAN, Eighteenth and Main Streets, Richmond, Va.

TIME IS MONEY,

SO IS

FREIGHT,

As every farmer knows by experience. We save you both when you buy our



VIRGINIA-MADE BUGGIES AND WAGONS.

All kinds of vehicles at low prices. Quality and workmanship unsurpassed. Send for beautiful, illustrated catalogue, or better still, come and inspect our stock.

Agents for BARBOUR BUGGY CO., HUGHES BUGGY CO., VIRGINIA WAGON CO., ALL OF VIRGINIA.

WE ARE ALSO AGENTS FOR THE

DEERING CORN BINDER.

LET US QUOTE YOUR PRICES ON IT.

Correspondence Solicited,

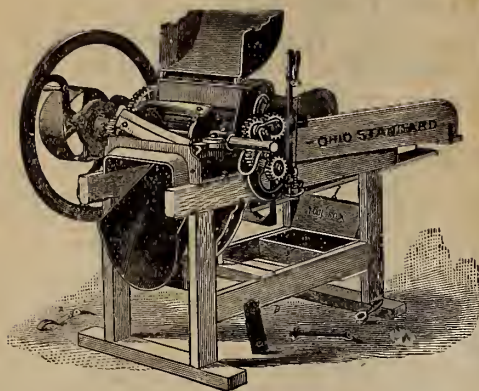
Inspection Invited.



RICHMOND BUGGY & WAGON CO., 1433 E. Main Street, RICHMOND, VA.

J. T. DUNN, Manager.

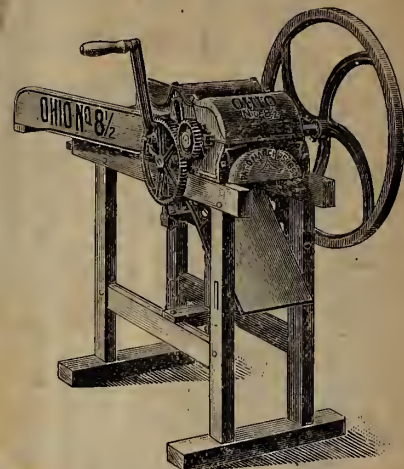
OHIO FEED AND ENSILAGE CUTTER



For hand or power. The strongest, simplest and BEST MADE. Write for prices, catalogues and testimonials.

CANE MILLS AND EVAPORATORS

We are agents for the celebrated "Kentucky" Mill and "Cook's Improved Evaporator." At least the equal of any made, and far superior to most.



CIDER MILLS.—Single or double, for hand or power

PEA HULLERS.—It will pay to inspect the "STAR." Will hull and clean from 10 to 15 bushels of peas every hour.

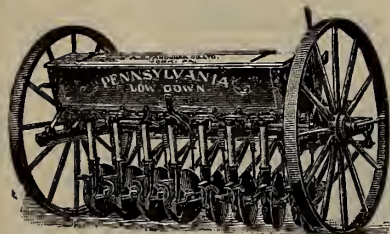
DISC HARROWS.—Send for special catalogue of the "EVANS," lightest draft and strongest harrow made.

OWEGO AND PENNSYLVANIA DISC GRAIN DRILLS

With or without fertilizer attachment.

THE IDEAL FEED MILL AND POWER COMBINED

Has no equal for grinding shelled grain, corn and cob into excellent feed. The Horse-Power is very useful for running other machinery as well. A full line of mills for horse and steam power.



THE No. 19 IDEAL MILL.

For one horse. A very useful size for small farms. Price, \$15.00.

PLOWS.

Try an "Imperial" and you will not want any other. It is admitted by all who have used it to be the best in the world.



Everything the Farm Needs we can Supply, and that at a Close Price.

WAGONS, BUGGIES, CARRIAGES, HARNESS AND SADDLES.

The most complete line in the State. Write for special catalogue.

FANNING MILLS.—We can strongly recommend the "Lyons" for cleaning any kind of grain or grass seed. Does its work clean, and praised by every one who has used it.

BALING PRESSES.—For a serviceable press at a low price, we think the "Lyle" is the best on the market. Supplied with or without power attachment. Write for descriptive circulars.

THE IMPLEMENT COMPANY,

1302 and 1304 East Main Street, - RICHMOND, VA.

HOW TO REMOVE STAINS.

THEY SHOULD ALWAYS BE TAKEN OUT BEFORE THE ARTICLES ARE WASHED.

All stains should be removed before the articles are put in the washtub. The sooner a stain is treated the more readily it will yield to the treatment. Pour boiling water through fruit stains; when obstinate soak in a solution of oxalic acid. Wash vaseline stains in alcohol; paint, in turpentine or alcohol; varnish, in alcohol; grass or other green vegetable stains, in alcohol, kerosene or molasses; for stains from blood, meat juice, use white of egg in cold water. In the case of milk, cream, sugar or syrup stains, soak in cold water and wash with soap and cold water. Tar, wheel grease or machine oil stains should be rubbed with lard and allowed to stand a few minutes, then they should be washed with soap and cold water. Tea, coffee or cocoa stains should be removed with boiling water; if obstinate, with a weak solution of oxalic acid.—MARIA PARLOA, in *The Ladies' Home Journal*.

FURNITURE POLISH.

A good polish for varnished furniture is equal parts of vinegar, sweet oil and spirits of turpentine; the furniture may be washed first with warm water and soap. The little white spots which come on varnished furniture may be removed by holding a hot dinner plate over them for a few moments. For unvarnished furniture of dark wood a coarse oil, mixed with turpentine, does very well; besides improving the appearance and cleaning it, it also preserves the wood and strengthens it. Chippendale or inlaid mosaic furniture should be frequently cleaned with oil, which preserves it from cracking and keeps the inlaid parts from becoming loose and protruding. Anyone who is fortunate enough to possess olive-wood tables or boxes should have them frequently wiped over with olive oil. Cane chair bottoms may be not only cleansed, but made more springy and elastic by washing with hot water, using, if they are dirty soap also. The chair should be turned upside down and well soaked. Dry it out in the wind and sunshine, and it will be as firm and nice as when new, unless it is broken or injured in some way. *Ledger Monthly*.

A good-for-nothing fellow who used to dress like a sailor and did nothing but beg, came to the house of a lady who had the reputation of being very benevolent. He thought he would melt her heart with a rather clever dodge. Reaching the lawn in front of the window where the lady was sitting, he began eating the grass. Presently she came to the door and asked why he ate the grass. He replied, because he had nothing else to eat. "Oh," said she, "my poor dear sailor man, come into the house," and leading him through the hall she took him to the back door, and opening it, remarked, "Go outside, you will find the grass longer there."

NO NAME FOR IT.

Richmond: "How about that new health food you invented? Is it on the market yet?"

Bronxborough: "No; I've given it up. I find that all the good names have been used."—*Sun*.

Slimson. I hear you have been fighting that little boy next door, and that he whipped you. How did that happen? Willie: Well, he's going to give a party next week, and I was afraid if I licked him he wouldn't invite me.

WYANDOTTES.

White and Silver. Will sell this seasons' breeders cheap, to make room for the youngsters. Also offer

POINTER DOGS

Of finest hunting strains—either broken or unbroken.

CHAS. P. WINSTON, - Amelia, Va.

FOR SALE—Registered and High-Grade.

ANGORA GOATS.



From 1 to car load lots. Buck Kids from \$4.00 to \$15.

JEREMY IMPROVEMENT CO. Saxe, Charlotte Co., Va.

The Chesapeake & Ohio Railway

EXTENDING FROM CINCINNATI AND LOUISVILLE, AND

THROUGH ITS CONNECTIONS

THE BIG FOUR SYSTEM, from Chicago, St. Louis, Peoria, Indianapolis, Sandusky and Cleveland;

THE OHIO CENTRAL LINES, from Toledo and Columbus;

THE CINCINNATI, HAMILTON & DAYTON, from Detroit, Toledo, Lima and Dayton—

FORMS THE MOST DIRECT And from Five to Twelve Hours the Quickest ROUTE.

To STAUNTON, LYNCHBURG, CHARLOTTESVILLE, RICHMOND, PETERSBURG, NORFOLK,

And Principal Virginia Points.

H. W. FULLER, Gen. Pass. Agt. C. & O. Ry., Washington, D. C.

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OF SEVEN MONTHS (SEP. TO MARCH, 1903,) FOR 25c.

This Includes Our

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Which will be worth that Money.

Southern Planter, Richmond, Va.

"Crop Growing
Crop Feeding"

BY PROF. W. F. MASSEY.

383 Pp. Cloth, \$1.00; Paper, 50c.

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Southern Planter and Cloth Bound Volume, \$1.25

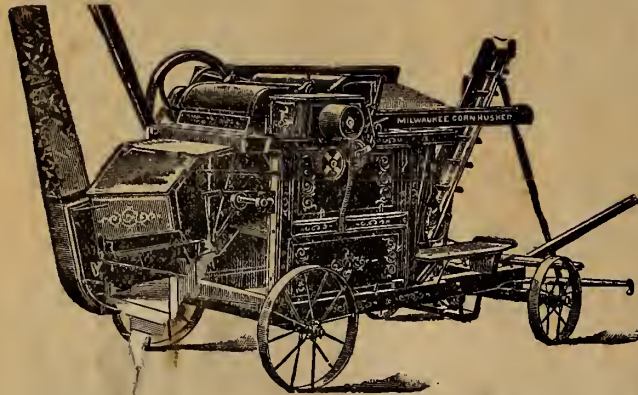
Southern Planter and Paper Bound Volume, 90c.

Old or new subscriptions.

Milwaukee Corn Husker and Fodder Shredder

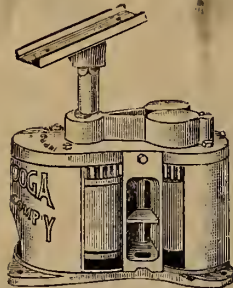
With Blower or Carrier. Manufactured in four sizes: Large machines for threshermen, and small machines for farmers' own use.

Read list of only a few of the many using the MILWAUKEE Husker.



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| R. L. Bruce, Medlock, Va., | M. L. Norvell, Island, Va., |
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| J. A. Graham, Hanover, Va., | J. A. Maddox, Triangle, Va., |
| L. E. Williams, Enfield, Va., | W. H. Walton, Rice Depot, Va., |
| Julian Ruffin, Old Church, Va., | T. S. Wilson, News Ferry, Va., |
| Edmund Ruffin, Old Church, Va., | Geo. R. Land, Boydton, Va., |
| A. T. Broaddus, Old Church, Va., | C. C. Moore, Charlotte, N. C., |
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| C. C. Branch, Toano, Va., | Col. B. Cameron, Stagville, N. C. |

The above parties will cheerfully give you testimonials as to the merits of the MILWAUKEE. We are ready at all times to go in the field with any other husker made, and will guarantee the MILWAUKEE to be the best made; and will also guarantee it to do more work than any other made, and shell less corn, and cost less for repairs and last longer. Write the parties that are using them; also write for special circulars and testimonials we have, which will be sent with pleasure.

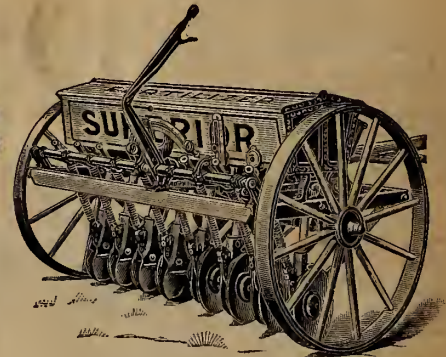


Chattanooga Cane Mills and Evaporators.



Steel Lever Harrows.

Spring-tooth Harrows, all sizes, plain and with levers; Smoothing Harrows, and anything in the Harrow line always on hand at bottom prices.



Superior Grain Drills.

Plain and Fertilizer Hoe and Disc Drills.



The Scientific Grinding Mills.

Are unequalled for grinding Ear Corn, shucks on or off Corn, Oats, Wheat and all other grains singly or mixed.

Power Mills in five sizes; 2 to 30 horse-power.

Sweep Mills in two styles.

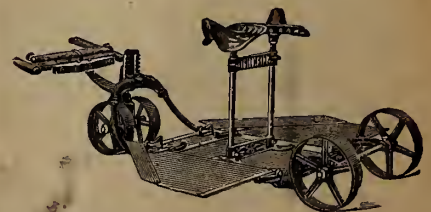
Geared Mills in four styles.

Special prices given on Studebaker and Brown Wagons, Buggies and Carts.

Wheelbarrow Seeders, Cahoon Seeders.

Hutchinson One-Tub Cider Mills, made in two sizes.

Write for special catalogue and price on any implement wanted.



Scientific Steel Corn Harvester.

The best Harvester on earth. For standing corn. Safety seats. Safety Shafts.



19. S. B.

DON'T FORGET! All the merchants in town who claim to sell Oliver Plows and Repairs only sell the Imitation, Bogus, Cheap Goods. The only place in Richmond, Va., to buy Genuine Oliver Plows and Repairs is at 1436 and 1438 East Main Street, from



ROSS

Fodder Cutters, Fodder Shredders, Cutters for all purposes, Corn Shellers, Grinding Mills, Horse Powers and Wood Saws.

HENING & NUCKOLS, Successors to CHAS. E. HUNTER, 1436-38 E. Main Street, RICHMOND, VA.

Agricultural Implements and Machinery



Cider Mills—with wooden crushing rollers.

The Hocking Valley Cider and Wine Mills
Have crushing rollers made of wood, which impart no taste or discoloration to the juice.

Buckeye Grain and Fertilizer Drill
With hoes or disc. Drills grain of all kinds, corn, peas, grass seed and fertilizers.

Our Five-Hoe Drill
For seeding between rows of standing corn is a great success.

Continental Disc Harrows,
Changed to straight or slanting tooth without stopping team.

Ensilage and Feed Cutters.
Capacities from 600 to 16,000 pounds per hour.

The Union Cutter.
Crushes the stalk after it leaves the knives—far superior to shredding.

The Combined Feed Mill and Horse Power
Is indispensable to every farmer. Grinds corn, shelled or on cob, grain of all kinds, and is a first-class horse-power for any purpose. Three machines in one.

The McCormick Corn Binder
Works like a grain binder, cutting and tying the corn and delivering in bundles.

The McCormick Husker and Shredder.
The most complete machine of its class made. The very low price brings it within the means of all.

Corn Shellers
For hand or power, separating corn from cob.

Churns—Improved Buckeye Rocker.
Unequaled for cheapness, with simplicity, strength, durability and perfect work.

Cane Mills and Evaporators.
Turned rollers, steel shafts, brass boxes, enclosed gearing. Made of special iron of great strength.

Portable Evaporators
With furnace. Pans of galvanized steel or copper.

Cucumber Wood Pumps
With porcelain-lined cylinder, for wells up to 45 feet in depth.

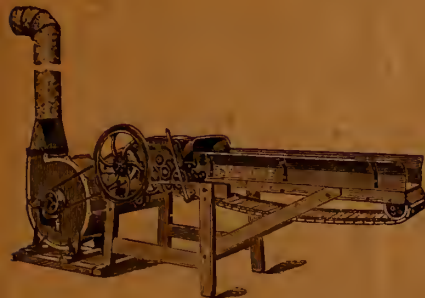
The Hancock Disc Plow,
Improved for 1902.
Will work in any land, and with less draft than any other disc plow.



Disc Drill.



Feed Mill and Power.



CYCLONE

Feed and Ensilage Cutters. All Sizes.



Portable Evaporator.



Cane Mill.



Belt Power Press.



Hand Power Press.



Full Circle Horse-Power Press.

THE WATT PLOW CO., Franklin and 15th Streets,
RICHMOND, VA.

The NORTHWESTERN MUTUAL LIFE INSURANCE CO.

ORGANIZED 1857.

PURELY MUTUAL.

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